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*North Carolina*  
*Department of Agriculture*  
*Biennial Report*  
*for 1956-1958*

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# BIENNIAL REPORT

*for 1956-1958*

NORTH CAROLINA  
DEPARTMENT OF AGRICULTURE

L. Y. BALLENTINE, COMMISSIONER

RALEIGH, N. C.





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## OUR COVER PICTURE

The photo on our cover symbolizes in several ways the "new look" in North Carolina agriculture. It illustrates our expanding grain and forage production, which in turn partly reflects the steady expansion in our livestock industry. It depicts the trend toward increasing mechanization in our farming operations. The tall corn in the picture is a North Carolina hybrid, symbolizing our progress in utilizing agricultural research to obtain greater yields.

All of these are encouraging signs of a brighter future for the state's agriculture. But they also mean that our farming people have been making, and must continue to make, some radical readjustments. North Carolina is a state of small farms, with the largest farm population in the nation. To meet competition, we must continue the trend toward mechanization and more efficient production methods. At the same time, it is desirable to keep our large farm population gainfully employed in agricultural pursuits, and our farm programs must be shaped with this need always in mind.

To meet the challenge before us requires imagination, ingenuity, know-how and determination. But it can be met, because our farmers and agricultural workers have these qualities; and, in addition, we are generously blessed with the necessary resources of soil and climate.

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p37807

## TABLE OF CONTENTS

	<i>Page</i>
Board of Agriculture .....	5
Personnel .....	6
Commissioner's Summary .....	13
Highlights of Board Meetings .....	21
Accounting Division .....	28
Chemistry Division .....	35
Credit Union Division .....	43
Dairy Division .....	45
Entomology Division .....	49
Markets Division .....	55
Museum Division .....	79
Publications Division .....	87
Research Stations Division .....	90
Seed Testing Division .....	108
Soil Testing Division .....	111
State Fair Division .....	113
Statistics Division .....	115
Veterinary Division .....	119
Warehouse Division .....	126
Weights and Measures Division .....	129



## STATE BOARD OF AGRICULTURE

---

L. Y. BALLENTINE, *Commissioner*  
*Ex-Officio Chairman*

J. ATWELL ALEXANDER	Stony Point
W. I. BISSETTE	Grifton
GLENN G. GILMORE	Julian
HOYLE C. GRIFFIN	Monroe
CLAUDE T. HALL	Roxboro
GEORGE P. KITTRELL	Corapeake
J. MUSE McCOTTER	New Bern
CHARLES F. PHILLIPS	Thomasville
J. H. POOLE	West End
A. B. SLAGLE	Franklin

# PERSONNEL

## of the

### STATE DEPARTMENT OF AGRICULTURE

#### June 30, 1958

L. Y. BALLENTINE, *Commissioner*

#### ADMINISTRATION

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BETTIE H. CARRIGG.....	<i>Stenographer Clerk III</i>
HAZEL I. HORNER.....	<i>Stenographer Clerk II</i>
DORIS B. WOFFORD.....	<i>Stenographer Clerk III</i>

#### DIVISION OF ACCOUNTS

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EDNA C. BROWN.....	<i>Accounting Clerk I</i>
GAYNELL BULLOCK.....	<i>Accounting Clerk II</i>
ALICE GRAE F. FERRELL.....	<i>Accounting Clerk IV</i>
MILDRED M. HORTON.....	<i>Accounting Clerk I</i>
ELSIE W. JORDAN.....	<i>Accounting Clerk III</i>
JEAN G. PACE.....	<i>Accounting Clerk I</i>
GWEN W. RATCHFORD.....	<i>Accounting Clerk I</i>
LENA P. SOCKELL.....	<i>Stenographer Clerk II</i>
LUNELLE YEARGAN.....	<i>Cashier Department of Agriculture</i>

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M. PAULINE DeCOSTA.....	<i>Public Information Officer I</i>
JOSEPH A. HUNTER.....	<i>Clerk II</i>
BETTYE T. ROGERS.....	<i>Clerk I</i>

#### INSPECTION

GEORGE A. BROWN, JR.....	<i>Feed, Fertilizer and Insecticide Inspector I</i>
E. H. COOPER.....	<i>Tax Auditor III</i>
LINDSEY ENNIS.....	<i>Feed, Fertilizer and Insecticide Inspector I</i>
HARVEY C. McPHAIL.....	<i>Feed, Fertilizer and Insecticide Inspector I</i>
JAMES R. STEVENS.....	<i>Feed, Fertilizer and Insecticide Inspector II</i>

#### MARKETS

JOHN A. WINFIELD.....	<i>Director Agricultural Marketing</i>
WILBUR S. BRANNAN.....	<i>Marketing Specialist III</i>
BETTY W. CHAPMAN.....	<i>Stenographer Clerk III</i>
JOHN H. CYRUS.....	<i>Marketing Specialist III</i>
JAY P. DAVIS, JR.....	<i>Marketing Specialist IV</i>
LEWIS F. DUNN.....	<i>Marketing Specialist II</i>
LOUISE T. DUNN.....	<i>Stenographer Clerk III</i>
DEWEY H. EVANS, JR.....	<i>Marketing Specialist III</i>
OLLIE W. FAISON.....	<i>Marketing Specialist IV</i>
JESSE R. FERRELL.....	<i>Marketing Specialist II</i>
CLEO M. GAULT.....	<i>Laboratory Technician I</i>
JOE B. GOURLAY.....	<i>Marketing Specialist III</i>



ELMER C. GREEN	Marketing Specialist III
THOMAS E. GREEN, SR.	Marketing Specialist III
EVELYN G. HARPER	Stenographer Clerk II
GEORGE F. HARRINGTON	Marketing Specialist II
WENDELL P. HEDRICK	Marketing Specialist IV
VERNON W. HILL	Marketing Specialist III
JAMES F. HOCKADAY, JR.	Marketing Specialist I
JULIUS P. JENNETTE	Marketing Specialist III
FRED P. JOHNSON	Marketing Specialist IV
RALPH B. KELLY	Marketing Specialist IV
ETHEL Y. KIKER	Marketing Specialist III
KATHERINE B. KOPPEN	Stenographer Clerk III
FRANCES A. LANCASTER	Stenographer Clerk II
WILLIAM E. LANE	Marketing Specialist II
MELBA J. LINDSAY	Stenographer Clerk II
STALEY S. LONG, JR.	Marketing Specialist II
HUGH B. MARTIN	Marketing Specialist IV
NEILL A. MORRISON, JR.	Marketing Specialist III
CHARLES G. MURRAY	Marketing Specialist III
LAVINIA E. MURRAY	Stenographer Clerk II
HOBART W. MYRICK	Marketing Specialist III
MARY L. NORMAN	Stenographer Clerk II
BETTY S. PETHEL	Stenographer Clerk III
ARTHUR K. PITZER	Marketing Specialist III
LOIS M. PLEASANTS	Laboratory Technician I
PHOEBE D. POWERS	Stenographer Clerk III
H. D. QUESSENBERRY	Marketing Specialist IV
B. S. RICH	Marketing Specialist IV
CARSON W. SHEFFIELD	Marketing Specialist IV
BEATRICE L. SMITH	Accounting Clerk I
HORACE A. SMITH	Marketing Specialist III
ROBERT W. SOUTHERLAND	Marketing Specialist II
ANN B. STODDART	Accounting Clerk I
ANNIE R. STRICKLAND	Stenographer Clerk II
CURTIS F. TARLETON	Marketing Specialist IV
CARL H. TOWER	Marketing Specialist III
GEORGE H. TURNER, JR.	Marketing Specialist II
EURIS R. VANDERFORD	Marketing Specialist II
PAULINE M. WATKINS	Typist Clerk I
DEWEY C. WAYNE	Marketing Specialist IV
PATSY C. WELLBORN	Accounting Clerk II
JAMES A. WILLIAMS	Marketing Specialist II

## DAIRY

C. W. PEGRAM	Director of Dairy Service
LAFAYETTE H. BOYKIN, JR.	Dairy Specialist II
ELMO H. HOLLOWOM	Dairy Specialist II
PAUL R. JORDAN, JR.	Bacteriologist
W. L. MCLEOD	Dairy Specialist II
ROBERT L. MERRITT	Laboratory Helper
FRANCIS PATTERSON	Dairy Specialist III
MARY M. WEATHERS	Stenographer Clerk II
GILES M. WILLIAMS	Dairy Specialist II

## ENTOMOLOGY

C. H. BRANNON	State Entomologist
HUGH I. ALFORD, JR.	Entomologist II
JAMES F. GREENE	Entomologist II
J. A. HARRIS	Entomologist III
PAULINE P. NEWSOM	Stenographer Clerk II
JESSE F. SESSIONS	Entomologist II
D. L. WRAY	Entomologist III

## SEED LABORATORY

WILLARD H. DARST.....	<i>Director of Seed Testing</i>
MAGDALENE G. BRUMMITT.....	<i>Seed Analyst III</i>
WALTER E. BURGISS.....	<i>Seed Specialist</i>
FRANCES H. COLVIN.....	<i>Seed Analyst II</i>
MAHLON B. DICKENS.....	<i>Seed Specialist</i>
STELLA W. ETHERIDGE.....	<i>Seed Analyst II</i>
PEARL G. GRAY.....	<i>Stenographer Clerk II</i>
VIRGINIA B. GRIFFIN.....	<i>Seed Analyst I</i>
THEODORA W. KING.....	<i>Seed Analyst I</i>
MURPHY G. MCKENZIE, JR.....	<i>Seed Specialist</i>
KENNETH M. MINTZ.....	<i>Seed Specialist</i>
EVELYN J. B. MURDOCH.....	<i>Seed Analyst I</i>
EWALD SMITH.....	<i>Seed Analyst II</i>
JOE N. TATE, JR.....	<i>Seed Specialist</i>
MILDRED W. THOMAS.....	<i>Seed Analyst II</i>

## ANALYTICAL

E. W. CONSTABLE.....	<i>State Chemist</i>
L. V. AMBURGEY.....	<i>Micronalyst</i>
HENRY W. BARNES, JR.....	<i>Chemist IV</i>
ELIZABETH F. BARTHOLOMEW.....	<i>Chemist II</i>
SAMUEL C. BOYD.....	<i>Laboratory Helper</i>
Z. B. BRADFORD.....	<i>Chemist IV</i>
BURNEY A. BRITT.....	<i>Chemist II</i>
DAVID E. BUFFALOE.....	<i>Chemist IV</i>
MARGARET B. CARTER.....	<i>Chemist II</i>
JAMES A. CHAPMAN.....	<i>Laboratory Helper</i>
VERA A. CULLER.....	<i>Chemist I</i>
DOROTHY M. DAVIS.....	<i>Stenographer Clerk III</i>
J. WHITT DAVIS.....	<i>Feed, Fertilizer and Insecticide Inspector I</i>
RALPH E. FERGUSON, JR.....	<i>Chemist I</i>
JOHN J. FILICKY.....	<i>Chemist II</i>
EVELYN A. FREEMAN.....	<i>Stenographer Clerk I</i>
ROBERT L. FREEMAN.....	<i>Food, Drug and Cosmetic Inspector</i>
CHARLES H. GODWIN, JR.....	<i>Food, Drug and Cosmetic Inspector</i>
SAMUEL H. HINTON.....	<i>Laboratory Helper</i>
VELVA E. HUDSON.....	<i>Typist Clerk III</i>
HAROLD L. JACKSON.....	<i>Chemist I</i>
JESSE G. JERNIGAN.....	<i>Chemist II</i>
H. D. MATHESON.....	<i>Chemist II</i>
W. P. MATTHEWS.....	<i>Chemist IV</i>
MARY A. MELVIN.....	<i>Stenographer Clerk II</i>
HARRY A. MILLER.....	<i>Chemist VI</i>
WILLIAM A. MORGAN.....	<i>Laboratory Helper</i>
L. M. NIXON.....	<i>Chemist V</i>
FRED P. NOOE.....	<i>Food, Drug and Cosmetic Inspector</i>
MYRNA L. NOWELL.....	<i>Typist Clerk III</i>
H. F. PICKERING.....	<i>Chemist IV</i>
J. S. PITTARD.....	<i>Chemist IV</i>
L. B. RHODES.....	<i>Food Chemist</i>
CLYDE W. ROBERTS.....	<i>Food, Drug and Cosmetic Inspector</i>
DON H. SMITH.....	<i>Laboratory Helper</i>
VALYNE F. STARLING.....	<i>Chemist I</i>
WILLIAM SYLVER, JR.....	<i>Laboratory Helper</i>
ROBERT N. TULLOCH.....	<i>Chemist II</i>
MURIEL M. WEATHERS.....	<i>Chemist II</i>
HAZEL L. WILLIS.....	<i>Stenographer Clerk III</i>

## CROP STATISTICS

JOHN T. RICHARDSON.....	<i>Administrative Officer</i>
RAYMOND R. ALFORD, JR.....	<i>Miscellaneous Duplicating Machine Supervisor GS 4</i>



MARY S. ALLEN.....	Research Analyst I
LOUISE W. BYRUM.....	Research Assistant
BEN E. CLAYTON, JR.....	Statistician I
CHARLIE H. CROSS, JR.....	Duplicating Machine Operator II
JOHN S. DECOURCY.....	Analytical Statistician GS 7
MARTHA F. EARLY.....	Research Assistant
TERRY M. EDWARDS.....	Duplicating Machine Operator II
EVELYN L. FINCH.....	Vari-Type Operator II
WINIFRED C. KARANGELEN.....	Research Assistant
IDA L. KING.....	Research Assistant
MARY F. LLOYD.....	Vari-Type Operator II
CARRIE M. MANN.....	Research Assistant
JANIE H. MURPH.....	Research Assistant
NANCY C. PENNY.....	Stenographer Clerk II
JOSEPHINE H. SMITH.....	Research Assistant
ROBERT H. TILLEY.....	Analytical Statistician GS 11
OLAF WAKEFIELD.....	Analytical Statistician GS 12
HARRY A. WHITE.....	Analytical Statistician GS 12
ROSA M. WREDE.....	Research Assistant

## SOIL TESTING

EUGENE J. KAMPRATH.....	Director Soil Testing
JOHN O. ANDERSON.....	Laboratory Helper
JO ANN BRIGGS.....	Stenographer Clerk I
CAROLYN E. CARROLL.....	Stenographer Clerk I
EVELYN S. CONYERS.....	Chemist I
CAROLYN O. COPELAND.....	Chemist I
ROBERTA B. DEAN.....	Chemist I
RUTH S. GARDNER.....	Chemist II
ARTHUR GILES.....	Laboratory Helper
JOANN J. LEAZER.....	Typist Clerk I
GERALD D. McCART.....	Agronomist I
ALICE F. McLAMB.....	Typist Clerk I
LUELLA M. REMINI.....	Stenographer Clerk III
MARGARET E. STANCIL.....	Stenographer Clerk II
DOROTHY R. THORNTON.....	Stenographer Clerk II
CHARLES D. WELCH.....	Agronomist II

## VETERINARY

HAL J. ROLLINS.....	State Veterinarian
JOSEPHINE A. ALLEN.....	Stenographer Clerk III
WILLIAM A. ANDREW.....	Poultry Specialist I
JOHN D. BAKER.....	Veterinarian III
MARVIN O. BATCHELOR.....	Livestock Inspector
SAMUEL O. BENSON.....	Veterinarian III
CHARLES R. BORDER.....	Veterinarian III
WILMA N. BOYKIN.....	Laboratory Technician I
G. I. BULLOCK.....	Livestock Inspector
JULIUS B. CASHION.....	Poultry Specialist I
JESSE J. CAUSBY.....	Poultry Specialist II
KENNETH G. CHURCH.....	Poultry Specialist I
JAMES H. CLEGG.....	Poultry Specialist I
WILLIAM W. CLEMENTS.....	Veterinarian II
HENRY B. COLLINS.....	Livestock Inspector
DONALD E. COOPERIDER.....	Director of Diagnostic Laboratory
ALTON L. CORBETT.....	Livestock Inspector
EUGENE C. COUCH.....	Poultry Specialist I
LILLY F. DAUGHTRY.....	Stenographer Clerk II
W. J. ELKINS.....	Poultry Specialist II
L. J. FOURIE.....	Poultry Specialist III
JAMES A. FRAZIER.....	Poultry Specialist I
GEORGE D. FULLER.....	Livestock Inspector



FRANK S. HALL.....	Clerk I
RALPH HAMILTON.....	Veterinarian II
FRANKLIN J. HEIM.....	Veterinarian II
ELIZABETH R. HELMS.....	Laboratory Technician II
FRANK HOWARD, JR.....	Laboratory Helper
G. W. IVEY.....	Poultry Specialist II
R. RUSSELL JETER.....	Veterinarian II
WILLIAM H. JUSTICE.....	Veterinarian II
JAMES D. KELLEY.....	Poultry Specialist I
IRENE K. KILPATRICK.....	Laboratory Technician II
FRED D. LONG.....	Poultry Specialist I
PAUL C. MARLEY.....	Poultry Specialist I
N. P. McDUFFIE.....	Poultry Specialist I
LOLA S. MITCHELL.....	Stenographer Clerk II
SUE F. ODOM.....	Stenographer Clerk II
DONALD D. PATE.....	Veterinarian III
PETER S. PENLAND.....	Poultry Specialist I
LUCY D. PONDER.....	Laboratory Technician III
VERLIN E. REESE.....	Poultry Specialist I
JAMES U. RICHARDSON.....	Laboratory Helper
LAURIE E. ROACH.....	Veterinarian II
PHIL R. SANDIDGE.....	Poultry Specialist I
DIXIE D. SOUTHARD.....	Poultry Specialist I
JOHN WILLIAMS, JR.....	Laboratory Helper
THERON S. WILLIAMS.....	Veterinarian III
JOHN R. WOODY.....	Poultry Specialist I
AUBURN L. WRIGHT.....	Poultry Specialist I

## RESEARCH STATIONS

CECIL D. THOMAS.....	Director of Research Stations
JULIA N. MEDLIN.....	Stenographer Clerk II
GEORGE F. STANLEY.....	Administrative Assistant of Agriculture
J. L. REA, JR.....	Research Station Superintendent
ELWOOD A. ALLEN.....	Senior Herdsman
HERBERT W. ALLEN.....	Farm Foreman II
LILLIAN A. BISHOP.....	Stenographer Clerk I
FENNER B. HARRIS.....	Herdsman I
J. M. CARR.....	Research Station Superintendent
ELIZABETH FLOYD.....	Stenographer Clerk II
LOCKE C. HAGWOOD.....	Farm Foreman II
CHESTER KEARNEY.....	Feed & Farm Laborer
MARJORIE J. KING.....	Typist Clerk I
WARREN H. BAILEY.....	Research Station Superintendent
SUSAN D. KILLEBREW.....	Stenographer Clerk I
THILBERT A. SUGGS.....	Farm Foreman II
RANDOLPH WHITLEY.....	Herdsman I
MURRAY R. WHISENHUNT.....	Research Station Superintendent
THEODORE R. BURLESON, JR.....	Poultryman
RUFUS CURTIS.....	Dairyman
JAMES R. EDWARDS.....	Dairy Superintendent
BERNICE H. HARRELL.....	Stenographer Clerk II
GARFIELD HARRIS.....	Farm Foreman II
WILLIAM C. HOLDER.....	Dairyman
DANA F. TUGMAN.....	Research Station Superintendent
ANNA S. McCLURE.....	Stenographer Clerk I
GORDON D. SHEETS.....	Farm Foreman II
DAN L. TAYLOR.....	Herdsman I
JESSE W. SUMNER.....	Research Station Superintendent
ERNEST W. ENGLISH.....	Poultryman
JACOB B. MATTHEWS.....	Dairyman
MELVIN G. RICHERT.....	Dairyman
JOHN SASSER, JR.....	Farm Foreman II
B. L. WILLIAMS.....	Stenographer Clerk II

J. W. HENDRICKS.....	Research Station Superintendent
GENTRY E. BELVINS.....	Farm Foreman II
ROSE B. INGRAM.....	Stenographer Clerk II
SAMUEL M. MILLER, JR.....	Herdsmen
MAYNARD L. SELF.....	Dairy Research Supervisor
WILLIAM L. STEELE.....	Dairyman
CLYDE Z. MCSWAIN, JR.....	Research Station Superintendent
DWIGHT C. AUSTIN.....	Farm Foreman II
JULIA L. SKINNER.....	Typist Clerk I
WALLACE J. DICKENS.....	Research Station Superintendent
WILLIAM T. GRIMSLEY.....	Farm Foreman II

#### WEIGHTS AND MEASURES

C. D. BAUCOM.....	Superintendent of Weights and Measures
JOHN I. MOORE.....	Weights and Measures Inspection Supervisor
WALTER R. BURNETTE.....	Heavy Duty Scale Inspector I
JOYCE G. CARTER.....	Stenographer Clerk II
WILLIAM T. CRAWFORD.....	Weights and Measures Inspector
GRADY F. HALL.....	Heavy Duty Scale Inspector I
RODERICK M. HORTON.....	Liquid Fertilizer Specialist
MARION L. KINLAW, JR.....	Weights and Measures Inspector
GROVER R. KISER.....	Weights and Measures Inspector
RUFUS A. MALLOY.....	Weights and Measures Inspector
NED A. POWELL.....	Heavy Duty Scale Inspector II
MARVIN E. SHAMBLEY.....	Weights and Measures Inspector
JAMES M. VESTAL, JR.....	Weights and Measures Inspector
FRANCES A. WILSON.....	Stenographer Clerk II
DAN C. WORLEY.....	Weights and Measures Inspector
GORDON S. YOUNG.....	Heavy Duty Scale Inspector II

#### STATE MUSEUM

H. T. DAVIS.....	Museum Director
LUDIE V. ASHE.....	Maid
JULIAN W. JOHNSON.....	Museum Exhibits Designer
ERNEST R. JONES.....	Janitor-Messenger
F. B. MEACHAM.....	Zoologist
JULIA F. NOWELL.....	Stenographer Clerk II
SARA D. PRINCE.....	Clerk I

#### CUSTODIAL

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VERNON A. WILLIAMS.....	Stock Clerk I

#### GASOLINE AND OIL INSPECTION

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CAREY M. ASHLEY.....	Chemist I
MILTON BAREFOOT.....	Gasoline and Oil Inspector
MADDREY W. BASS.....	Gasoline and Oil Inspector
MALVER L. BOYETTE.....	Gasoline and Oil Inspector
KATHLEEN C. BRAFFORD.....	Chemist I
JOHN A. BYNUM.....	Gasoline and Oil Inspector
WILLIAM L. CARPENTER.....	Chemist II
GLENN R. CATES.....	Chemist I
LONNIE E. CAYTON.....	Calibrator
HARVEY CLODFELTER, JR.....	Chemist I
JACK C. CONNOLLY, II.....	Chemist I
MILTON C. CONVERSE.....	Chemist II
JOSEPH DENTON.....	Gasoline and Oil Inspector
PAUL H. ETHERIDGE.....	Chemist I
J. A. GALLOWAY.....	Gasoline and Oil Inspector
ROY B. HALLMAN.....	Gasoline and Oil Inspector
ELLIOTT HARRISON.....	Laboratory Helper
HUGH F. HAYES.....	Chemist II



HORACE E. HERMAN.....	Calibrator
CLARENCE L. HOLLAND, JR.....	Chemist I
IRA G. HOLLOWAY.....	Gasoline and Oil Inspector
EDWIN H. HUTCHINS.....	Chemist I
HERMAN L. JONES.....	Gasoline and Oil Inspector
LUCY E. JORDAN.....	Chemist I
RICHARD W. KING.....	Gasoline and Oil Inspector
GERTRUD LARE.....	Accounting Clerk II
WILLIAM J. LEE.....	Chemist I
ROBERT H. MCARVER.....	Gasoline and Oil Inspector
CLAIBORNE M. NIXON.....	Calibrator
FRANCIS W. OAKES.....	Gasoline and Oil Inspector
W. T. O'BRIANT.....	Gasoline and Oil Inspector
DOUGLAS M. PAIT.....	Gasoline and Oil Inspector
WILLIAM H. PERRY.....	Calibrator
BETTY J. PHILLIPS.....	Stenographer Clerk I
PARLEY B. RASMUSSEN, JR.....	Chemist II
JAMES R. RIVERS.....	Gasoline and Oil Inspector
MILTON H. ROWE, SR.....	Gasoline and Oil Inspector
H. L. SHANKLE.....	Chemist V
J. T. SHAW.....	Chemist II
HARRY W. SHELTON.....	Chemist I
RAY D. SIGMON.....	Gasoline and Oil Inspector
KOY S. SMITH.....	Gasoline and Oil Inspector
DAVID B. SPIVEY.....	Calibrator
FRED O. SUMNER.....	Liquified Gas Inspector
RALPH G. THORNBURG.....	Chemist II
JAMES E. TURPIN.....	Gasoline and Oil Inspector
LEON E. VAN BRUNT.....	Calibrator
BOBBY M. WAGNER.....	Chemist I
MARY JO WARREN.....	Stenographer Clerk II
MILDRED B. YORK.....	Stenographer Clerk II

## COOPERATIVE INSPECTION SERVICE

ELDRIDGE C. PRICE.....	Marketing Specialist II
PEGGY Y. SMITH.....	Accounting Clerk II

## EGG MARKETING ACT

STUART A. GLOVER, JR.....	Marketing Specialist II
LILLIAM T. ISLEY.....	Stenographer Clerk II
CECIL R. REGISTER.....	Marketing Specialist II

## STATE WAREHOUSE SYSTEM SUPERVISION

A. B. FAIRLEY.....	Warehouse System Superintendent
HAZEL K. COBB.....	Clerk II
HALLIE K. MORROW.....	Stenographer Clerk II
FRANK C. PERSON.....	Warehouse Examiner
MARTHA E. SWINDELL.....	Stenographer Clerk II

## CREDIT UNION SUPERVISION

W. V. DIDAWICK.....	Credit Union Administrator
A. S. BYNUM.....	Fiscal Examiner II
HOWARD L. PIJAHN.....	Fiscal Examiner II
EDWARD H. SESSOM.....	Fiscal Examiner II
JOHN T. SIMPSON.....	Fiscal Examiner II

## STRUCTURAL PEST CONTROL COMMISSION

HARRY B. MOORE, JR.....	Entomologist III
-------------------------	------------------

## DISTRIBUTION OF SURPLUS COMMODITIES

JAMES A. GRAHAM.....	Manager Farmer's Market
ELIZABETH M. BOYKIN.....	Secretary



# BIENNIAL REPORT

## OF THE

### NORTH CAROLINA DEPARTMENT OF AGRICULTURE

By L. Y. BALLENTINE  
*Commissioner of Agriculture*

North Carolina agriculture is going through a transition period which began shortly after the end of World War II. The nature of agriculture is such that any radical readjustments are somewhat slow in coming about, and we can expect to remain in a transitory stage for years to come. Nevertheless, during the past two or three years the changes have accelerated in pace and broadened in scope.

This is a very gratifying development. The state's agriculture has been shifting toward a position where it can begin more fully and efficiently to utilize our great resources of soils, climate and farming people. But, of course, the many changes have had their impact on the North Carolina Department of Agriculture. They have made new demands on the Department, and called for expansion of traditional activities.

Much of this new or expanded work has been carried on with little or no increases in funds or personnel. This achievement has been due, in large measure, to two factors. One is increased efficiency made possible by the construction of badly needed facilities. The other, and most important, has been the dedicated loyalty of Department employees who have exerted themselves "beyond the call of duty" to meet the demands.

Further complicating and adding to the work of the Department and the Board of Agriculture have been the rapidly changing technologies which have a direct bearing on the Department's regulatory and service work. In the dairy industry alone, for instance, new methods for handling milk at the farm, and new processes or products developed by dairy distributors, have called for a great deal of effort in formulating regulatory measures and procedures. New methods for the manufacture and delivery of feeds and fertilizers have posed problems of inspection from the standpoint of both quality and quantity of these products.

These are but illustrations of the types of changes which are calling for increasing work and study on the part of Department

personnel and members of the Board of Agriculture. They are referred to in more detail in chapters of this report prepared by the heads of the various divisions responsible for these phases of the work. This section of the report will be devoted to the duties and activities which devolve more directly upon the Commissioner of Agriculture, some general departmental activities not covered in other sections, and a review of some new responsibilities placed in the Department by the General Assembly of 1957.

#### ACTIVITIES OF THE COMMISSIONER

As agricultural problems and programs increase, so does the necessity for the Commissioner of Agriculture to work with other agencies dealing with agricultural problems at state, interstate, and federal levels. At present, the Commissioner of Agriculture for North Carolina is chairman of the Transportation Committee of the National Association of State Departments of Agriculture and a member of that Association's executive committee. He is also a member of the Advisory Committee on Cooperative work under the Agricultural Marketing Act with State Departments of Agriculture, the Agricultural Advisory Committee of the Democratic National Committee, and the Agriculture Department Committee of the Chamber of Commerce of the United States.

At the state level, he is a member of the Governor's Farm Advisory Committee, a director of the Agricultural Foundation of North Carolina State College, a member of the North Carolina Cotton Promotion Committee, and chairman of the North Carolina Committee on Migrant Labor.

By legislation, the Commissioner of Agriculture is also chairman of the State Board of Agriculture, the State Board of Gasoline and Oil Inspection, and the Board of Directors of the North Carolina Agricultural Hall of Fame. He is a member of the North Carolina Milk Commission and of the Crop Seed Improvement Board. He is also charged with the responsibility for licensing and inspecting all agricultural fairs held in the state; and for regulating, licensing and inspecting all North Carolina rendering plants.

All of these activities, whether in cooperation with government or non-government agencies, and whether voluntary or required by law, have an important bearing on North Carolina's agricultural welfare. The names of these committees or agen-



cies indicate their character and the importance of their activities to the state.

Certain laws also require other Department personnel to participate in the work of independent agencies. One of these makes the Commissioner and the head of the Department's Seed Testing Division members of the Crop Seed Improvement Board.

Another provides that the Governor shall appoint two members from the Department to the Structural Pest Control Commission and that one of these shall be from the staff of the Department's Entomology Division. By appointment, Dr. D. L. Wray has represented the Entomology Division, and Assistant Commissioner John L. Reitzel has represented the Department at large, since the Commission was established in 1955. Dr. Wray has served as secretary to the Commission since it was established. However, shortly after the end of this biennium Mr. Reitzel was elected to that office for the ensuing year.

The law enacted in 1953 to license and regulate rendering plants authorized the Commissioner of Agriculture to designate a member of his staff to serve on a committee charged with making regulatory recommendations and rendering plant inspections. Dr. H. J. Rollins, State Veterinarian, has represented the Department on this committee since 1953. This law authorizes the Commissioner of Agriculture to adopt the regulations governing rendering plants, of which there are now 13 licensed in the state.

Near the end of the 1954-56 biennium, the Board of Directors of the Agricultural Hall of Fame set up standards for the selection of individuals to be given recognition in the Hall, and designated a room in the Agriculture Building for its location. In May, 1957, Colonel Leonidas LaFayette Polk, first North Carolina Commissioner of Agriculture and leader of the National Farmers Alliance, was chosen as the first member of the North Carolina Agricultural Hall of Fame. As this biennium draws to a close, plans are under way for converting into a suitable shrine the room selected for the Hall of Fame.

Supervision of agricultural fairs in the state continues to be an effective tool in preventing the abuse of the name "fair" by undesirable fly-by-nights. Under state law and regulations, the term fair must apply to bona fide agricultural and industrial expositions. Those classified as commercial (that is, charging admission or operating any traveling shows or games) must be licensed by the Department of Agriculture. There were 79 fairs



licensed in 1956, and 77 in 1957. All of these fairs were inspected; and only one fair in 1956, and two in 1957, failed to meet the minimum standards and qualifications for re-licensing in the succeeding year.

Commodity groups are continuing to take advantage of the state law which permits them to place assessments on their products, when these are approved in referendums authorized by the State Board of Agriculture. The assessments are for the purpose of raising funds to promote the use and sale of such products. Personnel of the Department of Agriculture assist such groups in launching these programs, and for several of them the Commissioner of Agriculture collects the assessments through the Department's Accounts Division. The North Carolina Peanut Growers Association chose this method of collection, and during the 1956-58 biennium, a total of \$110,136.92 was collected and turned over to this association.

Peach growers held a successful referendum in May, 1956, and authorized the Commissioner to collect the assessment of one cent for each tree in commercial peach orchards. Collections turned over to the North Carolina Peach Growers Society, Inc., during this biennium amounted to \$5,861.90.

During this biennium, the North Carolina Cotton Promotion Association and the North Carolina Cattlemen's Association requested and received authorization from the Board of Agriculture to hold similar referendums. In both cases the assessments were approved by the required two-thirds majority of those voting. The cotton assessment became effective September, 1957, and by the end of the current biennium the assessments collected totaled \$21,270.90. The assessment on beef cattle sold for slaughter became effective April 1, 1958, and by the end of the biennium \$3,617.40 had been collected.

In 1957, North Carolina farmers for the third time overwhelmingly approved the "Nickels-for-Know-How" program. This is the popular name for a program authorized by state law under which farmers may vote an assessment of five cents a ton on all feed and fertilizer sold in the state to raise funds for the purpose of supplementing agricultural research and dissemination of research information. The law provides that referendums on the question of continuing the assessment be held at three-year intervals. The State Department of Agriculture serves as the collecting agency for these "nickels". During this biennium, "Nickels-for-Know-How" collections total \$275,946.67. This

money was turned over to the Agricultural Foundation at N. C. State College, which administers the fund.

### NEW LEGISLATIVE RESPONSIBILITIES

Technological changes in agricultural production and processing frequently make it necessary to re-appraise the legal and regulatory measures designed to protect the farmer and consumer.

A typical case is afforded by the flue-cured tobacco situation at the beginning of this biennium. New methods of processing tobacco, and new types of cigarettes, caused a shift away from light-bodied tobaccos to heavier types. In the meantime, several varieties had been developed which were high yielding but which had undesirable qualities in the light of the changes in consumer demand. Late in 1956, the U. S. Secretary of Agriculture announced price support discounts, or penalties, on these varieties. The immediate result was a surplus of seeds of these penalized varieties and a shortage of seeds of the acceptable types. Inasmuch as a tobacco variety cannot be determined by a visual examination of its seed, it soon became apparent that some amendments to the Seed Law were needed to afford greater protection for the farmer in variety labeling of flue-cured seeds.

The state Board of Agriculture, at the request of the Department's Seed Testing Division, the N. C. Experiment Station, and the North Carolina Crop Improvement Association, sponsored legislation designed to provide needed safeguards. These were enacted into law on April 9, 1957.

In brief, these amendments provide:

(1) That any flue-cured variety offered for sale in the state must be recorded with the Commissioner of Agriculture before November 1 each year. The same designation must be used for each variety recorded as was used when the variety was first sold or recorded officially with an agency responsible for the enforcement of a State Seed Law.

(2) That a one-ounce sample of seed of each variety must be furnished the Commissioner at the time of recording. These samples are for planting in verification tests.

(3) That the Commissioner accept for recording only those flue-cured varieties which have been declared by the Tobacco Seed Committee to be correctly identified. The Tobacco Seed Committee consists of four ex-officio members from the North Carolina Experiment Station and three persons appointed by the



Commissioner of Agriculture to represent the seed trade, the seed producers, and the farmers at large.

A new law enacted in 1957 permits processors of meat and meat products to enter into voluntary agreements with the Commissioner of Agriculture to have their products inspected for condition and wholesomeness under state supervision. To obtain this service processors must meet minimum requirements for plant facilities and processing methods under regulations adopted by the State Board of Agriculture on July 29, 1957. Processors pay the cost of the service including the salaries of plant inspectors and the Department of Agriculture is empowered to add a reasonable administrative charge. By the end of this biennium eight meat plants in the state had come under this voluntary inspection program, and seven others did so shortly after the close of this biennial period.

A law sponsored by the North Carolina Peanut Growers Association to license and regulate buyers of, farmer stock peanuts became effective July 1, 1957. Under this law, any firm or individual who buys one ton or more of peanuts from producers must obtain an annual license from the Commissioner of Agriculture. A fee of \$10 per buyer provides funds for the administration of this law.

While the law authorized the State Board of Agriculture to adopt rules and regulations necessary for its enforcement, it also stipulates that the Commissioner of Agriculture shall appoint a five-member committee to advise in the enforcement of the law and in formulating regulations. The committee, by law, is made up of two representatives of North Carolina peanut growers, one representative of the Cooperative Marketing Association serving the state's peanut growers, one member representing North Carolina peanut commission buyers, and one representing the peanut millers and shellers of the state.

Regulations recommended by this committee were adopted by the Board of Agriculture on July 29, 1957. Under these regulations all licenses expire on June 30 each year, and each buyer must obtain his annual license at least 15 days before he makes his first purchase during the effective period of his license. Another regulatory provision requires buyers to retain all records of transactions until the first day of October following the buying season during which the transaction took place.

The Plant Pest Law was extensively re-written by the 1957 legislature to broaden and clarify the regulatory authority of the



State Board of Agriculture and the responsibilities of the Department as they pertain to the control and eradication of insects and other plant pests.

#### PERSONNEL CHANGES

On December 15, 1957, Dr. S. L. Tisdale, who had been director of the Soil Testing Division for two years, resigned to become manager of the National Plant Food Institute's regional office in Atlanta. Dr. Tisdale had made a fine contribution to North Carolina agriculture, first as Research Associate Professor of Agronomy at N. C. State College, and later in maintaining high standards of efficiency in the Department's Soil Testing Laboratory. It was with reluctance, therefore, that we accepted his resignation — the more so because his new position took him out of the state.

We had the good fortune, however; to obtain the services of Dr. Eugene John Kamprath to fill the post left vacant by Dr. Tisdale. Dr. Kamprath also came to the Department from N. C. State College, where he had been an Assistant Professor of Soils. He was graduated from the University of Nebraska with a B. S. in 1950 and an M. S. in agronomy in 1952. He did post-graduate work in soil fertility at N. C. State College, which awarded him a Ph. D. in 1955.

As this biennium drew to a close the Department of Agriculture was saddened by the death of Blackburn W. Johnson, who for 10 years had been director of the Publications Division and Secretary to the Board of Agriculture. He brought to this position broad experience in newspaper work, having served as a reporter for the Associated Press and for several North Carolina papers, one of which he owned and published for a time. He had also been editor of the Farmers Federation News, Asheville, N. C., for several years, and, for a brief time, editor of the Carolina Cooperator, published by the Cotton Association and the F. C. X. in Raleigh. Such a combination of journalistic and agricultural experience, combined with his high standards of integrity and warm personality, made him invaluable to the Department and beloved by his co-workers.

Filling the vacancy left by such a man was not easy. But as this report is written, we are glad to announce that a man who is well-equipped for the position by background and training has been appointed to this post. Elwood Mintz, who takes over the duties as head of the Publication Division on September 8, 1958, comes to the Department from the N. C. Agricultural Ex-

tension Service, where he has been assistant publications editor for the past four years. He was born and reared on a Brunswick County farm and was graduated from the University of North Carolina with an A.B. degree in 1950. His earlier experience includes several years of teaching school and two years as safety representative for the Department of Motor Vehicles.

### STATE BOARD OF AGRICULTURE

The State Board of Agriculture is the regulatory and policy-making body for the Department of Agriculture. Its 10 members are appointed by the Governor for staggered terms of six years, and the law requires that they represent the major sections of the state and various types of agricultural production. They serve without compensation, except for the days they are in session.

During this biennium Board members, too, have borne the brunt of fast-changing agricultural and technological problems of the Department of Agriculture. Many complicated technical matters have required their study and consideration, both during and between meetings of the Board.

North Carolina is particularly fortunate in its Board of Agriculture. The Commissioner and personnel of the Department of Agriculture, as well as the farmers and other citizens of this state, are deeply indebted to this group of men for the public service which they have given freely, and for the wisdom and impartiality they have brought to the offices they hold.

During the 1956-1958 biennium, the State Board of Agriculture held 11 meetings and was in session 12½ days.

Following is a brief list of the meetings which indicates the wide variety of subjects requiring the Board's consideration and judgment:



## HIGHLIGHTS OF BOARD MEETINGS

### 1956-1958 Biennium

**July 26, 1956,  
Raleigh**

Present: J. Atwell Alexander, W. I. Bissette, Glenn G. Gilmore, Hoyle C. Griffin, Claude T. Hall, George P. Kittrell, J. Muse McCotter, Charles F. Phillips.

**Statesville  
Test Farm**

Heard report on auction of Old Piedmont Test Farm at Statesville, June 15, 1956. Adopted motion to commend Commission appointed to handle sale.

**Warehouse Loans**

Approved loan of \$137,500 from Warehouse Fund to Statesville Elevator Co. for erection of grain elevator.

Approved loan of \$13,000 from Warehouse Fund to Farmers Bonded Warehouse, Inc., Wagram, N. C.

Approved loan of \$23,000 from Warehouse Fund to D. D. McCall and H. C. Council, St. Pauls, N. C.

Approved loan of \$25,000 from Warehouse Fund to Sandhill Bonded Warehouse, Inc., Southern Pines, N. C.

**Budget Requests**

Heard heads of divisions of Dept. explain proposed budget requests for the 1957-59 biennium. Approved budget.

**October 15, 1956,  
Raleigh**

Present: J. Atwell Alexander, W. I. Bissette, Glenn G. Gilmore, Hoyle C. Griffin, Claude T. Hall, George P. Kittrell, J. Muse McCotter, Charles F. Phillips, J. H. Poole, A. B. Slagle.

**Tidewater Research Station  
Easement for  
Telephone Line**

Approved easement granting right of way to Carolina Telephone and Telegraph Company for telephone line and poles across Tidewater Research Station.

**Bottling Non-Milk Beverages  
in Dairy Plants**

Held public hearing and amended regulations to permit bottling of non-carbonated citrus juices in plant bottling Grade A milk.

**Ice Milk in Open  
Containers**

Held public hearing on proposal to permit ice milk to be served in open containers for immediate consumption. Deferred action.

**October 16, 1956,  
State Fair**

Attended opening of N. C. State Fair.

**January 14, 1957,  
Raleigh**

Present: J. Atwell Alexander, W. I. Bissette, Glenn G. Gilmore, Hoyle C. Griffin, Claude T. Hall, George P. Kittrell, J. Muse McCotter, J. H. Poole.

**Warehouse Loan**

Approved loan of \$88,000 from Warehouse Fund to Fred Webb, Greenville, N. C., for construction of 250,000-bushel grain elevator.

**Dairy Regulations**

Held public hearing on amendments to Dairy Regulations: (1) Multi-vitamin milk and fortified skim milk—appointed a committee to recommend regulatory measures. (2) Definitions of cottage cheese and creamed cottage cheese—adopted definitions. (3) Reports from butterfat testers—adopted regulation. (4) Licensing milk samplers—adopted regulation. (5) Procedures for sampling milk from farm bulk tanks—deferred action. (6) Condemnation of worn or corroded equipment for manufacturing frozen desserts—adopted. (7) Requiring submission of plans for alteration or construction of ice cream or frozen dessert establishments—adopted. (8) Regulations to permit operation of mobile frozen dessert units—deferred.



<b>Bologna, Frankfurters and Smoked Sausage—Definition</b>	Held public hearing and adopted regulation to define and limit the amount of cereal and dried milk solids in bologna, frankfurters and smoked sausage.
<b>Tobacco Seed Labeling (Variety)</b>	Appointed committee to draft amendments to seed law for purpose of tightening provisions for labeling tobacco seed as to variety.
<b>Piedmont Test Farm, Statesville</b>	Received report on land sold and remaining unsold at Old Piedmont Test Farm, Statesville.
<b>Witchweed (Striga)</b>	Heard report from C. H. Brannon, State Entomologist, on discovery of new pest known as "Witchweed" (Striga) in four counties of North Carolina.
<b>Soybean Cyst Nematode</b>	Heard report from C. H. Brannon on new discoveries of soybean cyst nematode in Tennessee and Missouri.
<b>February 18, 1957, Raleigh</b>	Present: J. Atwell Alexander, W. I. Bissette, Hoyle C. Griffin, Claude T. Hall, George P. Kittrell, Charles F. Phillips, J. H. Poole.
<b>Tobacco Seed—Amendments to Seed Law</b>	Heard and approved recommendations of committee appointed January 14 on amendments to seed law providing for registration of tobacco seed varieties.
<b>Seed Potato Law Amendments</b>	Heard and approved proposal to amend seed potato law to require notification to Department as to disposition of potatoes found in violation of the law and as to anticipated shipments of seed potatoes; also to make illegal the possession of un-official seed potato tags.
<b>"Nickels For Know-How" Referendum</b>	Authorized "Nickels for Know-How" referendum to be held in 1957.
<b>Ice Milk in Open Containers</b>	Received request from counter-freezer operators for action on proposal to permit sale of ice milk for immediate consumption in open containers. Also heard opposition to this proposal from representatives of N. C. Dairy Products Association. Deferred action for further study.
<b>Vitamins in Milk</b>	Received report of committee appointed Jan. 14 on recommended definition for fortified skim milk, but committee requested more time to prepare a definition of multi-vitamin whole milk. Voted to defer action on fortified skim milk until it could be considered with definition for multi-vitamin whole milk.
<b>Dairy Regulations—Sampling from Farm Bulk Tanks</b>	Adopted regulations specifying procedures for sampling milk from farm bulk tanks on six months trial basis.
<b>Warehouse Loan</b>	Approved increasing by \$6,000 the loan to D. D. McCall and H. C. Council, St. Pauls, N. C., approved on July 26, 1956.
<b>Mobile Frozen Dessert Units</b>	Considered further the request to adopt regulations to permit operation of mobile frozen dessert units. Deferred action.
<b>News &amp; Observer Farm Income Contest</b>	Voted to go on record as endorsing the Raleigh News & Observer's Farm Income Contest, and urging organizations and individuals in the various counties to supplement and support this program.
<b>April 8 and 9, 1957, Raleigh</b>	Present: J. Atwell Alexander, W. I. Bissette, Glenn G. Gilmore, Hoyle C. Griffin, Claude T. Hall, George P. Kittrell, J. Muse McCotter, Charles F. Phillips, J. H. Poole.

State Fair Audit	Received Report on Audit, North Carolina State Fair, for the period January 1, 1956, to December 31, 1956.
State Fair, Appointment of Manager	Reappointed Dr. J. S. Dorton as Manager of the North Carolina State Fair for the next 12 months.
Japanese Beetle Quarantine	Amended regulation to extend Japanese Beetle Quarantine to 10 new counties.
Milling Grade of Corn	Held public hearing and established standards for a milling grade of corn.
Vitamins in Milk	Received report of committee appointed on January 14 to recommend regulatory measures, and adopted regulations on a six-month trial basis, governing Fortified Grade A Skimmed Milk and Grade A Vitamin-Mineral Fortified Milk.
Dietary Beverages	Held public hearing and adopted regulations and standards for dietary beverages made with non-nutritive sweeteners.
Ice Milk in Open Containers	Adopted regulations governing the sale of ice milk in open containers when dispensed directly from freezers for immediate consumption on the premises.
Three-pint Ice Cream Container	Postponed action on a request from a container manufacturer to permit the sale of ice cream in three-pint containers.
Legislation to License Peanut Buyers	Endorsed legislation proposed by N. C. Peanut Growers Association to license and regulate buyers of farmers stock peanuts.
<b>(April 9)</b>	
Cotton Referendum	Certified N. C. Cotton Promotion Association, Inc., as group representative of N. C. cotton producers, and authorized the Association to hold a referendum among cotton growers on the question of levying upon themselves an assessment for promoting the use and sale of cotton.
<b>June 3, 1957, Raleigh</b>	
Fertilizer Grade List	Present: J. Atwell Alexander, W. I. Bissette, Hoyle C. Griffin, Claude T. Hall, J. Muse McCotter, Charles F. Phillips, J. H. Poole.
Fertilizer Registration of Grades Removed From List	Held public hearing and adopted official fertilizer grade list for fiscal year 1957-58.
Warehouse Loan Application	Adopted regulation prohibiting registering as a specialty grade any grade of fertilizer which has appeared on the official grade list at any time during the five years immediately preceding such registration.
Dietetic Ice Milk	Received application for loan of \$55,000 from the Warehouse Fund to Shelby Bonded Warehouse. All money being out on loan, agreed to give this application first consideration when money becomes available.
Oxford Research Station—Request for Industrial Site	Adopted definitions and standards for "Dietetic Ice Milk" made with non-nutritive sweeteners.
July 29, 1957, Raleigh	Appointed a committee to negotiate with Oxford Future Industries regarding an exchange of land from the Oxford Research Station for a prospective industry.
	Present: J. Atwell Alexander, W. I. Bissette, Glenn G. Gilmore, Hoyle C. Griffin, Claude T. Hall, George P. Kittrell, J. Muse McCotter, Charles F. Phillips, J. H. Poole, A. B. Slagle.



(Oath of office reappointed members)	Oath of office was administered in the Governor's office to Claude T. Hall, J. H. Poole and A. B. Slagle for appointments to new six-year terms.
Dairy Regulations	Held public hearings on proposal to amend dairy regulations as follows.
Farm Bulk Milk Holding Tanks	Amendments to clarify, and adapt to modern tank designs, regulations for installations of farm bulk milk holding tanks.
Dispenser Milkshake Machines	Postponed action on proposed regulations to permit operation of dispenser milkshake machines. Appointed committee to make recommendations at next meeting.
Definition for Whipped Cream and Table Cream Topping	Postponed action on proposed definitions for "Whipped Cream" and "Table Cream Topping" and authorized committee to make recommendations at next meeting.
Swine Diagnostic Laboratory for Eastern N. C.	Authorized Commissioner to appoint a committee of representatives from eastern hog-raising counties to select the location for a swine diagnostic laboratory in Eastern N. C.
Meat Inspection Regulations	Held a public hearing and adopted regulations under new law providing for voluntary inspection of meat, meat products and meat by-products.
Fertilizer—Request for Exception From New Regulation	Received request from H. G. Hastings Company, Atlanta, Ga., for exception from regulation requiring 5-year waiting period before grades removed from official list may be registered as specialty. Request denied.
Statesville Test Farm, Committee to Lay Out Roadway	Authorized committee from the Board to lay out a road-way back of an 18-acre tract recently sold from the Old Piedmont Test Farm at Statesville.
State Fair Manager, Salary	Approved increase in salary from \$8,118 to \$9,054 for Dr. J. S. Dorton, Manager N. C. State Fair, amount of increase representing equivalent of pay increase granted by legislature to State employees classified under Personnel Department.
Peanut Buyers Regulations	Adopted regulations under new law to license and regulate buyers of farmers' stock peanuts.
October 14, 1957 Raleigh	Present: J. Atwell Alexander, W. I. Bissette, Glenn G. Gilmore, Hoyle C. Griffin, Claude T. Hall, George P. Kittrell, J. Muse McCotter, Charles F. Phillips, J. H. Poole, A. B. Slagle.
Witchweed Quarantine	Adopted regulations quarantining certain areas of the state to prevent the spread of a new plant pest known as "Witchweed" ( <i>Striga</i> sp.)
Soybean Cyst Nematode Quarantine	Revised regulation placing a quarantine on certain areas of the state to prevent the spread of soybean cyst nematode.
Nursery Regulations	Held public hearing on proposed revision of nursery regulations. Postponed action.
Beef Cattle Promotion Assessment Referendum	Authorized North Carolina Cattlemen's Association to hold a referendum on the question of assessing themselves to promote the use and sale of beef.
Dairy Regulations—Chocolate Milk	Held public hearing and amended Dairy Division regulations to permit the sale of chocolate milk containing a minimum of 2 percent butterfat.

- Milkshakes** Amended definition of milkshake to require the use of Grade A milk in this product.
- Milkshake Dispenser Machines** Adopted regulations governing operation of milkshake dispenser machines.
- Fertilizer Regulations, Guarantees of Water-Soluble Magnesium** Heard request from fertilizer manufacturer that regulations be amended to permit guaranteeing percentage of magnesium which is water-soluble in tobacco fertilizers. Deferred action to permit industry to be heard.
- Fertilizer Regulations—Registration of Grades Removed From List** Heard request from fertilizer manufacture for modification of regulation prohibiting registration as specialty grade any grade which has appeared on the official list within a five-year period. Deferred action pending committee recommendation and public hearing.
- Cotton Assessment Referendum Report** Received report from North Carolina Cotton Promotion Association on results of self-assessment referendum held August 23, 1957.
- Nickels for Know-How Referendum Report** Received report from Agricultural Foundation, State Grange, and N. C. Farm Bureau Federation on results of "Nickels for Know-How" referendum held August 23, 1957.
- Whipped Cream and Table Cream Topping** Received recommendations of committee appointed July 29, 1957, that whipped cream and related products be required to conform with regulations governing fluid cream products. Authorized Commissioner to notify manufacturers of such products that they must so conform.
- October 15, 1957 Raleigh** Attended opening of 1957 State Fair.
- December 19, 1957 Raleigh** Present: J. Atwell Alexander, W. I. Bissette, Glenn G. Gilmore, Hoyle C. Griffin, Claude T. Hall, George P. Kittrell, J. Muse McCotter, Charles F. Phillips, J. H. Poole, A. B. Slagle.
- Appointing Head of Soil Testing Division** Approved appointment of Dr. Eugene John Kamprath as head of Soil Testing Division, replacing Dr. S. L. Tisdale, who resigned effective December 15, 1957.
- Fertilizer Grade List—Request for Reinstatement of 3-9-6** Heard request for reinstatement of 3-9-6 on official fertilizer grade list. Deferred action until regular fertilizer grade hearing for 1958-59.
- Dairy Regulations—Butterfat in Skimmed Milk and Buttermilk** Held public hearing and amended Dairy Regulations to place a maximum of one percent butterfat permitted in skimmed milk and buttermilk.
- Fortified Milks** Made trial definitions of Fortified Grade A Skimmed Milk and Grade A Vitamin-Mineral Fortified Milk permanent sections of the Dairy Regulations.
- Sampling Procedures for Farm Bulk Tanks** Made trial regulations governing sampling procedures for farm bulk tanks a permanent part of the Dairy Regulations.
- Nursery Regulations** Adopted new Nursery Regulations, including revised nursery inspection fees.
- Piedmont Research Station—Purchase and Sale of Land** Authorized a committee to conduct preliminary negotiations in connection with offers to buy three outlying tracts of land at the Piedmont Research Station in Rowan County, and recommended purchase of a 20-acre strip and building adjacent to the southeast boundary of the farm.



Sale of Bldg. at Upper Mountain Research Station	Ratified sale of an old frame tenant house at the Upper Mountain Research Station, Laurel Springs.
Sale of Bldg. at Piedmont Research Station	Ratified sale of 2-story wood frame barn at Piedmont Research Station, Rowan County.
Weights & Measures Regulations—Customary Standards, and Regulations on Sale of Oleomargarine, Butter, etc.	Held public hearing and adopted regulations setting forth customary standards of weight and capacity measures, and prescribing standard weight packages for butter, cheese, oleomargarine and shortening.
March 3, 1958, Raleigh	Present: J. Atwell Alexander, W. I. Bissette, Glenn G. Gilmore, Hoyle C. Griffin, Claude T. Hall, George P. Kittrell, J. Muse McCotter, Charles F. Phillips, J. H. Poole, A. B. Slagle.
Piedmont Research Station—Sale of Land	Received report of committee appointed December 19, 1957, to appraise land for which purchase offers had been received. Approved sale of 23-acre tract to J. W. Hamby for \$50 an acre, and sale of 4-acre tract to town of Kannapolis for \$1,000.
Piedmont Research Station—Right-of-Way Easement	Approved granting right-of-way easement to Duke Power Co. for power lines connections at Piedmont Research Station.
Visit by Governor Hodges	Heard brief talk by Gov. Hodges commending the Board for their services to the state and urging their cooperation with Governor's Advisory Farm Committee.
Swine Diagnostic Laboratory for Eastern N. C.	Approved accepting the gift of one acre of land in Chowan County offered by J. Wallace Goodwin as a site for swine diagnostic laboratory near Edenton.
Warehouse Loan—Shelby Bonded Warehouse	Approved loan from Warehouse Fund of \$55,000 to Shelby Bonded Warehouse, Shelby.
Departmental Budget—1959-1961	Reviewed proposed requests under "A Budget" for operating Department of Agriculture at present levels of service and for Capital Improvements.
May 12-13, 1958 Raleigh	Present: J. Atwell Alexander, W. I. Bissette, Glenn G. Gilmore, Hoyle C. Griffin, Claude T. Hall, George P. Kittrell, J. Muse McCotter, Charles F. Phillips, J. H. Poole.
Seed Regulations Amended—Germination Standard for Garden Beans	Amended seed regulations to lower minimum germination standard for garden beans from 75 percent to 70 percent, to bring this standard into uniformity with federal regulations.
Witchweed	Added witchweed to list of noxious weeds prohibited in crop seed.
Lease to State of Raleigh Farmers Market	Approved lease to the State of North Carolina of certain equipment and facilities at Raleigh Farmers Market, to be operated by the N. C. Department of Agriculture in co-operation with other state agencies in providing marketing services to farmers and conducting experiments in the operations of farmers' markets.

Meat Tenderizers	Discussed with Health Department and industry representatives requests for regulations to permit the use of tenderizers on meat processed in North Carolina. Appointed Committee to study the problems involved and make recommendations to the Board.
State Fair Audit Report	Received report from Department of State Auditor of audit for the North Carolina State Fair for the calendar year 1957.
State Fair Man- ager Appointed	Re-appointed Dr. J. S. Dorton to serve as manager of the North Carolina State Fair for another year.
Apple Growers Referendum	Certified the North Carolina State Apple Growers Association as the agency representative of commercial apple producers in certain counties; and authorized the association to hold a referendum on the question of self-assessment to promote the use and sale of apples.
Department Bud- get 1959-61	Reviewed requests under "B Budget" for new or expanded activities in the 1959-61 biennium. Approved "A Budget" reviewed at March 3 meeting, "B Budget" and "Capital Improvements" requests.
<b>(May 13, 1958)</b>	
Fertilizer Regula- tions	Held public hearing on various proposed amendments to fertilizer regulations.
Grade List	Adopted official fertilizer grade list for year beginning July 1, 1958.
Minor Elements in Fertilizer	Discussed proposal to require guarantees of amounts of minor plant foods when these are advertised. Deferred action.
Registration of Grades Re- moved from List	Amended regulation prohibiting registration as specialties any grades of fertilizers which have appeared on the grade list during the preceding five years, by making this prohibition apply only to fertilizers sold in bags of 25 pounds or more.
Labeling Fertilizer- Insecticide Mixtures	Authorized Commissioner of Agriculture to accept labeling meeting federal requirements for the labeling of fertilizer-insecticide mixtures.



# ACCOUNTS

GRACE H. MALLOY

*Auditor*

Financial report of the Department and the various divisions.

## DEPARTMENT OF AGRICULTURE

Code 1101

### STATEMENT OF DISBURSEMENTS

July 1, 1956—June 30, 1958

SUMMARY BY PURPOSES	1957-58	1956-57
I. Administration .....	\$ 39,584.29	\$ 36,744.86
Accounting Office .....	43,227.01	25,186.19
Publicity and Publications .....	37,988.42	32,688.34
II. Inspection .....	56,173.53	50,753.90
III. Markets .....	344,034.68	292,419.83
V. Dairy .....	58,765.10	52,990.40
VI. Entomology .....	77,462.81	47,462.02
VII. Seed Laboratory .....	83,634.34	75,272.64
VIII. Analytical .....	222,310.34	228,099.35
IX. Crop Statistics .....	150,632.29	143,741.46
X. Soil Testing .....	91,533.72	78,413.60
XI. Blister Rust Control .....		896.32
XII. Veterinary .....	335,541.60	257,326.14
XIII. Research Stations .....	490,185.39	415,357.81
XV. Weights and Measures .....	89,725.05	87,431.64
XVI. State Museum .....	31,761.41	28,318.70
XVIII. Custodial .....	18,044.44	17,296.54
XIX. Miscellaneous .....	109,495.74	105,518.69
XX. Rabies .....		
XXI. Japanese Beetle Control .....		6,905.32
XXII. White Fringed Beetle Control .....		9,488.01
XXIII. Indemnity Diseased Slaughtered Livestock .....		8,023.45
XXV. Vesicular Exanthema .....		19,748.22
Deferred Obligations—Transferred to 1957-58 .....		21,841.00
TOTAL EXPENDITURES .....	\$2,280,100.16	\$2,041,924.43

### SUMMARY BY OBJECTS

11. Salaries and Wages .....	\$1,547,930.90	\$1,336,321.51
12. Supplies and Materials .....	138,889.06	121,146.83
13. Postage, Tel., Tel., and Express .....	33,571.72	30,544.82
14. Travel Expense .....	178,919.47	167,764.65
15. Printing and Binding .....	27,429.93	24,448.68
16. Motor Vehicle Operation .....	15,337.07	18,257.47
17. Light, Power, and Water .....	7,189.06	5,166.11
18. Repairs and Alterations .....	18,236.25	16,758.31
19. General Expense .....	108,081.33	103,280.09
22. Insurance and Bonding .....	3,074.38	3,074.38
23. Equipment .....	61,952.63	62,511.84
32. Additions and Betterments .....	34,944.16	42,714.32

	1957-58	1956-57
33. Stores for Resale .....	19,526.05	15,885.89
Contribution to Retirement System .....	85,018.15	72,208.53
Deferred Obligations—Transferred to 1957-58 .....		21,841.00
<b>TOTAL EXPENDITURES</b> .....	<b>\$2,280,100.16</b>	<b>\$2,041,924.43</b>
Less Transfer from RMA .....	68,855.99	79,373.77
Less Transfer from AMA .....	1,898.48	3,716.93
Less Sale of Land—Balance .....		18,679.15
Less Transfer from USDA Cooperative Agreement .....	1,562.94	1,998.17
Less Research Stations Perquisites .....	10,591.67	9,744.52
Less Sale of Land—Piedmont Research Station, Iredell County .....	30,725.00	
Less Sale of Land—Piedmont Research Station, Rowan County .....	2,176.00	
Less Deferred Obligations— Transferred from 1956-57 .....	21,841.00	
Less Transfer from Cooperative Inspection Service, Code 1803 .....	3,726.00	
Less Transfer from State Warehouse System Supervision, Code 1801 .....	3,283.00	
Less Peanut Handler's Licenses .....	1,840.00	
Less Sale of Automobiles .....	5,334.93	
Less From Code 3214—Purchase of Land Tobacco Research Station .....		4,945.00
<b>TOTAL</b> .....	<b>\$2,128,265.15</b>	<b>\$1,923,466.89</b>

## CONDITIONS OF FUNDS

Treasurers Cash—June 30 .....	\$ 48,199.85	\$ 161,027.51
Investments in Bonds and Premiums on Bonds .....	103,874.98	103,874.98
<b>TOTAL CREDIT BALANCE JUNE 30</b> .....	<b>\$ 152,074.83</b>	<b>\$ 264,902.49</b>

## DEPARTMENT OF AGRICULTURE

Code 1101

## STATEMENT OF RECEIPTS

July 1, 1956—June 30, 1958

Fertilizer Tax .....	\$ 357,805.51	\$ 383,854.72
Cottonseed Meal .....	920.85	1,042.96
Feed Tax .....	337,269.57	297,689.45
Seed Licenses .....	30,394.00	28,981.00
Condimental Feed .....	8,200.00	4,680.00
Serum .....	15,972.37	17,668.98
Costs .....	13,400.28	14,855.69
Linseed Oil .....	504.09	328.29
Bleached Flour .....	7,275.00	7,560.00
Bottling Plants .....	1,650.00	1,150.00
Ice Cream .....	2,445.00	1,435.00
Insecticides .....	31,620.00	28,270.00
Research Stations .....	139,457.79	148,103.93
Bakeries .....	2,550.00	2,660.00
Chicken Tests .....	59,738.23	58,680.66
Seed Tags .....	19,374.33	25,396.54



	1957-58	1956-57
Inspection Entomology .....	10,021.55	9,098.80
Oleomargarine .....	1,150.00	1,250.00
Land Plaster and Agricultural Lime.....	23,014.50	22,722.26
Fertilizer Registration .....	6,368.00	6,432.28
Miscellaneous .....	91.76	108.77
Feed Registration .....	8,256.00	7,738.00
Canned Dog Food Registration .....	515.60	390.04
Lime Registration .....	375.00	335.00
Livestock Marketing Permits .....	6,300.00	5,500.00
Dog Food Stamps .....	11,613.01	11,194.71
Hatchery Fees and Supplies .....	4,007.05	4,323.30
Permits for Out-of-State Milk .....	425.00	575.00
Anti-Freeze Permits .....	2,935.00	1,475.00
Weights and Measures Fees.....	7,215.00	8,317.50
Garbage Permits .....	713.00	777.00
Babcock Testers Licenses .....	232.00	255.00
Tobacco Curers Tags .....	602.90	20.00
Land Plaster Registration .....	30.00	2,650.00
Rendering Plants .....		50.00
Sampler's Licenses .....	496.00	246.00
Interest on Investments .....	2,500.00	2,500.00
<b>TOTAL AGRICULTURAL RECEIPTS.....</b>	<b>\$1,115,437.49</b>	<b>\$1,108,315.88</b>
Contribution from General Fund.....	900,000.00	798,958.00
<b>TOTAL REVENUE.....</b>	<b>\$2,015,437.49</b>	<b>\$1,907,273.88</b>

SHEEP DISTRIBUTION PROJECT  
SPECIAL FUND—Code 3

RECEIPTS AND DISBURSEMENTS

July 1, 1956—June 30, 1958

Credit Balance—July 1 .....	\$ 48,189.18	\$ 15,148.96
Revenue Collections .....	253,347.47	169,404.10
Disbursements .....	286,998.54	136,363.88
Credit Balance—June 30 .....	14,538.11	48,189.18

DISTRIBUTION OF SURPLUS COMMODITIES  
Code 19

RECEIPTS AND DISBURSEMENTS

July 1, 1956—June 30, 1958

Credit Balance—July 1 .....	\$ 116,758.39	\$ 114,496.96
Revenue Collections .....	6,607.30	12,849.85
Disbursements .....	6,785.43	10,588.42
Credit Balance—June 30 .....	116,580.26	116,758.39

N. C. AGRICULTURE RESEARCH AND MARKETING ACT  
FEDERAL FUND

Special Fund—Code 51

RECEIPTS AND DISBURSEMENTS

July 1, 1956—June 30, 1958

Credit Balance—July 1 .....	\$ 9,300.65	\$ 6,978.06
Receipts—RMA Matching Fund .....	70,814.06	70,814.03
Sale of Cars .....	2,696.00	

	1957-58	1956-57
Disbursements		
Markets Division Expenses in Connection with RMA Project—Transferred to Code 1101 .....	68,855.99	64,794.03
Crop Statistics Division Expenses in Connection with RMA Project—Transferred to Code 1101 .....	1,898.48	3,697.41
Credit Balance—June 30 .....	12,056.24	9,300.65

SPECIAL DEPOSITORY ACCOUNT REPORTING SYSTEM  
Code 56

STATEMENT OF RECEIPTS  
July 1, 1956—June 30, 1958

Credit Balance—July 1 .....	\$ 4,750.00	\$ 4,500.00
Receipts—(Cash Bond Deposits) Reporting System Handlers of Farm Products .....		250.00
Credit Balance—June 30 .....	9,750.00	4,750.00

GASOLINE AND OIL INSPECTION  
General Fund—Code 320

STATEMENT OF DISBURSEMENTS  
July 1, 1956—June 30, 1958

Revenue Appropriation .....	\$ 311,043.00	\$ 276,511.00
Disbursements .....	299,862.40	258,815.35
Unspent Balance of Appropriation .....	11,180.60	17,695.65

STATE WAREHOUSE SYSTEM—SUPERVISION  
Special Fund—Code 1801

FINANCIAL STATEMENT  
July 1, 1956—June 30, 1958

Credit Balance—July 1 .....	\$ 21,618.87	\$ 22,098.04
Receipts		
Revenue Collections .....	34,059.41	33,266.85
Miscellaneous Collections .....	333,628.55	878,071.12
Disbursements		
Expenditures .....	38,719.25	33,746.02
Miscellaneous Expenditures .....	333,984.88	878,071.12
Credit Balance—June 30 .....	16,602.70	21,618.87

STATE WAREHOUSE SYSTEM—PRINCIPAL  
Special Fund—Code 1802

STATEMENT OF RECEIPTS AND DISBURSEMENTS  
July 1, 1956—June 30, 1958

Cash on Hand—State Treas.—July 1 .....	\$ 10,193.75	\$ 53,183.83
Receipts		
Repayment of Loans .....	42,279.97	22,768.03
Sale of Bonds .....	208,255.23	43,241.89
Total Availability .....	260,728.95	119,193.75



	1957-58	1956-57
Disbursements		
Loans to Warehouses .....	260,500.00	109,000.00
Treasurers Cash—June 30 .....	228.95	10,193.75
Loans to Warehouses .....	612,868.00	394,647.97
Invested in 2½% U. S. Gov't. Bonds .....	97,000.00	333,000.00
Total Worth—June 30 .....	710,096.95	737,841.72

## COOPERATIVE INSPECTION SERVICE

Special Fund—Code 1803

## STATEMENT OF RECEIPTS AND DISBURSEMENTS

July 1, 1956—June 30, 1958

Treasurers Cash—July 1 .....	\$ 78,200.84	\$ 32,326.20
U.S. Treasury Bonds—2½% Par Value.....	40,000.00	40,000.00
Premiums on Bonds .....	1,175.00	1,175.00
Credit Balance—July 1 .....	119,375.84	73,501.20
Receipts .....	447,623.44	408,435.46
Disbursements .....	455,154.98	362,560.82
Credit Balance—June 30.....	111,844.30	119,375.84

## EGG MARKETING ACT

Special Fund—Code 1804

## RECEIPTS AND DISBURSEMENTS

July 1, 1956—June 30, 1958

Credit Balance—July 1 .....	\$ 8,918.09	\$ 5,210.92
Receipts .....	19,702.34	19,076.50
Disbursements .....	15,206.79	15,369.33
Credit Balance—June 30 .....	13,413.64	8,918.09

## STRUCTURAL PEST CONTROL

Special Fund—Code 1805

## RECEIPTS AND DISBURSEMENTS

July 1, 1956—June 30, 1958

Credit Balance—July 1 .....	\$ 6,081.89	\$ 3,696.05
Receipts .....	17,613.00	7,001.00
Disbursements .....	8,707.02	4,615.16
Credit Balance—June 30 .....	14,987.87	6,081.89

## VOLUNTARY POULTRY INSPECTION

Special Fund—Code 1806

## RECEIPTS AND DISBURSEMENTS

July 1, 1956—June 30, 1958

Credit Balance—July 1 .....	\$ 5,052.03	\$
Receipts .....	80,614.16	61,043.72
Disbursements .....	80,691.96	55,991.69
Credit Balance—June 30 .....	4,974.23	5,052.03

## CREDIT UNION SUPERVISION

Special Fund—Code 1807

## RECEIPTS AND DISBURSEMENTS

July 1, 1956—June 30, 1958

	1957-58	1956-57
Credit Balance—July 1 .....	\$ 4,538.18	\$
Receipts .....	37,572.23	32,918.46
Disbursements .....	35,502.34	28,380.28
Credit Balance—June 30 .....	6,608.07	4,538.18

## VOLNTARY MEAT INSPECTION

Special Fund—Code 1808

## RECEIPTS AND DISBURSEMENTS

July 1, 1956—June 30, 1958

		\$
Credit Balance—July 1 .....	\$	
Receipts .....	13,382.33	
Disbursements .....	10,929.32	
Credit Balance—June 30 .....	2,453.01	

## CONTRIBUTION FROM THE GENERAL FUND

General Fund—Code 3212

## STATEMENT OF DISBURSEMENTS

July 1, 1956—June 30, 1958

Revenue Appropriation .....	\$ 945,640.00	\$ 908,284.79
Expenditures		
Contribution to Department of Agriculture—		
Code 1101 .....	900,000.00	798,958.00
Hay Curing Research Project .....		1,035.80
USDA Feed-Grain Program .....		2,102.80
Distribution—USDA Food Program .....		1,444.87
Unspent Balance of Appropriation .....	45,640.00	104,743.32

## PERMANENT IMPROVEMENTS—ADDITIONS AND BETTERMENTS

Code 14391

## STATEMENT OF DISBURSEMENTS

July 1, 1956—June 30, 1958

Appropriation .....	\$ 132,938.35	\$ 13,259.48
Receipts .....		129,100.00
Disbursements .....	126,583.96	9,421.13
Unspent Balance of Appropriation .....	6,354.43	132,938.35

## CAPITAL IMPROVEMENTS

Code 1483

## RECEIPTS AND DISBURSEMENTS

July 1, 1956—June 30, 1958

Appropriation .....	\$ 258,000.00	\$
Receipts .....	16,700.00	
Disbursements .....	90,817.42	
Unspent Balance of Appropriation .....	183,882.58	



## N. C. DEPARTMENT OF AGRICULTURE

## EMERGENCY HAY PROGRAM

Code 22

## RECEIPTS AND DISBURSEMENTS

July 1, 1956—June 30, 1958

	1957-58	1956-57
Credit Balance—July 1 .....	\$	\$
U. S. Department of Agriculture Allotment.....	582.49	48.33
Disbursements .....	582.49	48.33
Credit Balance—June 30.....		

## N. C. EDUCATIONAL RADIO &amp; TELEVISION COMMISSION

General Fund—Code 637

## STATEMENT OF DISBURSEMENTS

July 1, 1956—June 30, 1958

Appropriation .....	\$	3,205.00
Disbursements .....		1,672.85
Unspent Balance of Appropriation.....		1,532.15

# DIVISION OF CHEMISTRY

DR. E. W. CONSTABLE

*State Chemist*

The work of the Division of Chemistry involves administration of a group of control laws, the purposes of which are to safeguard the health, welfare and economic interests of consumers, to promote sound agricultural and business economics, and to curb fraud and unscrupulous or destructive competition.

As implied by the Division name, chemical and related procedures are basic factors in this work to make determinations and evaluations. Because of their highly technical nature, these are services which cannot be performed generally by the people themselves.

The products covered by these laws are fertilizers and fertilizer materials; liming materials and landplaster, livestock and poultry feeds, pesticides, linseed oils, automotive antifreezes, foods, drugs, cosmetics and devices, oleomargarine, flour bleaching, enrichment with vitamins. The Division also administers the laws regulating application of pesticides by aircraft, and inspections of bakeries, bottling plants, other food processing plants, storages, vehicles and sales outlets through which these products are handled.

Requirements which apply generally to the products covered are that they shall bear specified, factual and informative labeling and guarantees which must be met. It is further required that foods, drugs and cosmetics be wholesome and free from adulteration or exposure to insanitation, that drugs shall carry cautions, adequate directions for use, and in case of dangerous drugs, notice of restricted sale. Pesticide labeling must also give directions for use, warnings of danger, antidotes and first aid instruction when needed. Operators in aircraft dusting must meet certain qualifications and procure state licenses in order to operate legally in the boundaries of the state.

Summaries of these activities, with other pertinent information are given in the following sections.

## COMMERCIAL FERTILIZERS AND LIMING MATERIALS

Samples of fertilizers, fertilizer materials, liming materials and landplaster are officially collected from all parts of the state by Division inspectors and sent in for analysis to determine com-



pliance with guarantees. Inspections include checking for compliance with labeling requirements and coverage by inspection taxes. Analyses are made respectively as follows: for fertilizers—the content of nitrogen, phosphate, potash, calcium, magnesium, chlorine, sulphur, boron, acid-forming qualities, and (recently added) iron, manganese, copper, zinc, and molybdenum; for liming materials—calcium, magnesium, and screen size; for landplaster—calcium sulphate.

Coverage for the biennium was:

Official fertilizer samples-----	20,528
Unofficial samples of fertilizers and materials for farmers-----	87
Official liming materials—with potash and landplaster-----	226
Total -----	<hr/> 20,841

Details of samples collected and analyzed are published in the Annual Fertilizer Bulletins. These results show the products to have been generally of standard quality and as represented.

The direct use on the soils of nitrogen solutions, liquefied anhydrous ammonia and, to a limited extent, liquid mixed fertilizers appear to have become a fixed practice in farm operations. These products are registered, sampled, analyzed, and reported, and otherwise dealt with as is the practice with other fertilizers.

Among the problems which have appeared in the fertilizer field are:

1. The sale of very dilute fertilizer solutions (fractional percentages of plant food), delivered in, and applied to turf from, fuel-oil tank trucks during the off-season in the sale of oils.

2. The sale of fertilizer in bulk, at times delivered and applied to the soil by spreader trucks.

3. The sale of liquid mixed fertilizers, either delivered as bulk lots or applied to the soil.

4. The sale of solutions from compartment tankers which mix these as they are applied to the soil.

5. The sale of materials from cars on railroad sidings, these materials moving from car to siding mixer, thence to regular vehicles for delivery as bulk mixes, or to spreader trucks for direct application to the soil for farmers.

#### 6. The sale of fertilizers as "buyers' mixes".

The sale of very dilute solutions was stopped both because of failure to meet the minimum requirement of 20 units of plant food and also because of corrosiveness to equipment. The sale from compartment or "mixer-spreader" trucks and tankers and from freight cars at railroad sidings appear to be still in the developmental or experimental stage. Three of these practices—the sale in bulk of liquids and of solids, the delivery of these as bulk lots or spread on the soil, and the sale as "buyer mixes"—appear to be growing practices. Attendant problems of protection and control are now under study.

Because of increased interest in trace elements in fertilizers by manufacturers and users, the provision of the law for guaranteeing additional plant food elements was brought into force and arrangements made for adding guarantees for manganese, copper, iron, zinc and molybdenum. Fuller significance of this move remains to be disclosed by time.

The fertilizer inspectors, although they regularly work on an "intermittent" basis, returning for each fertilizer season, are classified as "temporary", therefore receive none of the benefits that other employees enjoy. All receive the same pay, the lowest in the inspection scale, although a number of them have been in the work 10 to 20 years. Request is being made in the pending budget for improvement in this status, putting them on a pro-rate basis for all considerations extended other employees.

### COMMERCIAL FEEDS

In line with the provisions of the applicable laws, samples of commercial livestock and poultry feeds and canned dog food were officially collected from all parts of the state, checked for compliance with labeling, tax and other requirements and analyzed chemically for content of crude protein, fat, crude fiber, urea, medication, moisture; and microscopically for ingredients and their condition.

Results of the work show that standards and quality were maintained at a normal level. These were reported individually and also published in detail in the annual Feed Bulletins. Coverage for the biennium was as follows:

Official samples .....	4,915
Unofficial samples .....	343



For medication (on above samples) ----- (363)

Total ----- 5,258

The annual increase in tonnage of feed sold continued through the biennium. The accompanying expansion of sales in bulk and as "customer's mixes", as in the case of fertilizers, posed new problems in protection and control. It is recognized that absence of effective control in these areas is an open invitation for return of fraud and unscrupulous competition in this industry. Studies toward needed adjustments are in progress.

### ECONOMIC POISONS

Following a period of rapid development and the appearance of many new economic poisons, the industry and usages to a large extent continue to maintain a relatively constant position, but with the addition of new items from time to time. North Carolina agriculture calls for a large volume of these products as it does of fertilizer. The volume of samples collected and analyzed is in proportion.

The pesticide season naturally falls into the calendar year rather than a fiscal year. The pesticide law therefore places registrations and other procedures on the calendar year basis. The annual Insecticide Report, in which details of activities and results of analyses are given is also on the calendar year basis. Therefore, reports herein are on the same basis.

Results of the work for the biennium 1955-57 show that standards were maintained on a normal level and that generally satisfactory products were supplied to users. Defective products were dealt with as prescribed by law. The coverage for the two years is as follows:

Official samples -----	2,843
Unofficial samples -----	27
Total -----	2,870

Some difficulty has been encountered due to bulk sale of pesticides from broken packages, an illegal practice. Some merchants, for greater profit or selling advantage, were buying certain liquid products in 50 gallon drums and retailing them in gallon lots, put into any container handy, more often than not without the required labeling, directions for use, warnings of misapplication and dangers. In addition to this practice being il-

legal, it resulted in damage to crops, i.e., mistakenly using MH-30 as an insecticide on young tobacco plants, the effect on the entire plant being the same as when used to stop growth of suckers on more mature plants. The practice was largely due to lack of information or carelessness and was promptly discontinued on notice.

#### AERIAL CROP DUSTING

Purposes of the aerial crop dusting law are to eliminate unethical practices and irresponsible performances in some segments of this business, to allay numerous complaints and group moves to outlaw this type of crop dusting, to bring better order in this business, to support and maintain the sound element of the industry, and to preserve for the farmers of the state a useful facility in the production of crops. The law, now in its fifth year of operation, although still with some exceptions, has largely accomplished these purposes.

The general turmoil and confusion which characterized the industry has disappeared. Complaints now are few. Usually these are readily cleared. There still is some carelessness in spreading pesticides on property adjacent to that intended to be treated. Several court actions have been necessary to enforce compliance with the requirements for registration and liability insurance coverage. These were effective. Fuller inspection facilities would be advantageous.

Licenses issued for the biennium were as follows:

	1957	1958
Contractors -----	50	41
Applicators -----	105	81
Airplanes -----	101	76

#### AUTOMOTIVE ANTIFREEZES

Experience in the control of internal combustion engine antifreezes continues on the highly satisfactory level which has applied since the law was enacted, 1949. No unethical operators have appeared, no spurious products have been found on the market and no complaints on these products have come to the attention of the Department. Much credit for this highly satisfactory status is due the dealers and Oil Jobbers Association of the state and to ethical manufacturers for their cooperation. Merchants uniformly purchase stocks on authentic evidence of current clearance of these products by the Department.



Registrations were 65 brands for 1956-57 and 74 brands for 1957-58. These, representing 37 manufacturers, covered both the alcohol and glycol types of products.

### FOODS AND DRUGS

The work of the Chemistry Division in administering the North Carolina Food, Drug and Cosmetic Act has been generally effective within the limits of the facilities provided for that work. It is recognized, however, that this program has not kept pace with the state's growth in population and expansion in industry, particularly that dealing with foods. Obviously a staff of four inspectors and two food chemists is inadequate to fully cover the expanded needs in safeguarding the state's food supply.

These facts are set forth in the current budget and requests are made for the addition of two food chemists and two food inspectors as at least a tentative measure toward a more adequate food control program.

Among the provisions of the food laws is the requirement that foods shall be composed of sound and wholesome raw materials, that they be stored, handled and processed in a fully sanitary manner and that environment, housing, equipment, vehicles and other facilities be kept and used in a manner to preclude exposure that may result in contamination.

In order to determine compliance with these requirements, regular and systematic inspections are made of these facilities and written reports made accordingly. Defects of a minor nature usually are corrected by calling attention to them and giving information on requirements. Major defects or bad conditions may require stoppage of operations until corrections are made, embargoing and diverting products to other channels of use, denaturing and destroying unfit products, or other appropriate actions according to circumstances. Actions under these headings are summarized as follows:

### FOOD PLANT INSPECTIONS

Bakeries and Doughnut Plants	2,136
Bottling Plants	1,184
Other types of plants (processing and packaging meats, pickles, seafood, flour, meal, candy, po- tato chips, fruits and vegetables, etc.)	2,528
Total	5,848

## PLANT OPERATIONS SUSPENDED

Bakeries -----	29
Bottling Plants -----	12
Others (as per preceding tabulation) -----	76
Total -----	117

Among the many ways in which the food supply may become unwholesome, fraudulent or dangerous to health are contamination with poisonous or deleterious substances, insanitation, decomposition, exposure to vermin, products from diseased animals, misrepresentation, abstraction of valuable constituents or substituting with cheap or worthless diluents. Among the most insidious types of adulteration is insanitation and contamination with bacteria. These often are the cause of sickness.

In addition to food plant inspections, basic procedures for detecting adulteration are analyses (chemical, physical and otherwise) of official samples. Because of the great volume of food on the market, the greatest effectiveness of work is dependent on the critical judging and selecting of significant official samples. Further information derives from reports and complaints made by consumers and dealers and from unofficial samples submitted by them.

The activities of the biennium included the handling and checking of 2,264 samples, representing products both satisfactory and unsatisfactory; 540,000 pounds of foods and 5,000 bottled items under 190 embargo actions. These embargoes involved all classes and types of foods—canned goods, beverages, fruits, vegetables, bakery products, sugar, spices, meats, candies, milk products, etc.—and for various reasons such as spoilage, insanitation, contamination by insects, rodents, worms and other vermin, storm and fire damage, etc. On a year-to-year basis, statistical data of this nature will vary broadly since a single heavy storm or flood, a large warehouse fire or the wrecking of a produce train can alter the picture overnight by thousands of items or millions of pounds.

Each year has its quota of losses from fires, storms, floods and wrecks. Fortunately, this type of loss during the biennium was relatively small, and mostly limited to minor fires, occurring in shopping centers, markets and bakeries.

The integrity of drugs as to quality, composition, and factual labeling can be determined only by chemical analysis. This is



the basis for the part of the law which applies to drugs. The "boot-legging" or illegal sale of dangerous and habit-forming drugs also is a constant danger. The Department's facilities for work in this field is limited, but every effort is made to curb such activities and afford maximum protection. This work at times is carried on cooperatively with the U. S. Food and Drug Administration, since this class of drugs is produced largely in other states and moves in interstate commerce and, therefore, is subject to both federal and state laws.

The policy of cooperation with other agencies permits work in certain lines to be carried out on a level of effectiveness not otherwise possible. In line with this procedure, the illegal sale of barbiturates was apprehended and the advertising and sale of bogus tranquilizer drugs was stopped. Under six embargo actions, stock of plastic fingernail shields, located in various parts of the state, were stopped and removed permanently from commerce, since, after being used for a period of time, they resulted in many women losing fingernails.

#### PERSONNEL AND LABORATORIES

Questions of personnel and laboratories has been a part of the Division's budget and biennial reports for a period of years. Personnel status was somewhat improved in the past biennium by the addition of a secretary and a feed and insecticide inspector. A continued need in this line, however, is for more adequate help in food inspection and analysis. Provision for two inspectors and two chemists are in the current budget requests.

Laboratory needs are well taken care of by the new space in the annex to the Agricultural Building. Current budget requests in this respect are limited to need of new and improved equipment which is necessary in analyzing new pesticide and feed medication materials.

## CREDIT UNION DIVISION

W. V. DIDAWICK

*State Superintendent of Credit Unions*

The Credit Union Division was established by the 1915 General Assembly for the purpose of organizing credit unions and supervising their operation. The supervision is to ensure that each credit union is conducting its operation in accordance with the law so that the members' money will be safe.

We are now making regular examinations on a ten-month basis to all state-chartered credit unions and more frequent follow-up visits to those where examination reveals something wrong. Persuasion is the chief tool used to correct a bad situation, and it usually works. But, where it fails, the Division may use firmer methods.

When embezzlement is revealed by an examination, we have been doing the detailed checking necessary to substantiate the claim with the bonding company for the credit union. This is not a primary function of this office. However, it is given as an additional service which is essential but which most credit unions, being non-profit organizations, are unable to provide for themselves.

Any group having a common bond of association, occupation, or residence can organize a credit union in order to have a convenient way to save money regularly, even in small amounts, and a place to borrow money at a reasonable rate of interest when the need arises. Because of growing interest in consumer credit costs and allied problems, many employers are now assisting their employees in securing a credit union to finance their purchase of consumer goods. The credit union loan is by far the best and cheapest to be had from any financial institution.

Almost all of the 232 state chartered credit unions showed an excellent growth during the two-year period covered by this report. The consolidated figures reveal that the combined assets of these organizations increased \$5,303,058.53 during the two-year period. Loans to members increased \$4,597,170.23, and liquid assets (investments) increased \$1,583,631.03. These consolidated figures were compiled from the financial and statistical reports received from the credit unions as of June 30, 1958.

This Division has helped to conduct three workshops for credit



union treasurers and officers during the biennium. These workshops will pay off in better records being kept by the treasurers and in better audits being made by the supervisory committees. This will improve the operation of the credit unions and will make our supervisory-agency examinations easier and require less time.

NUMBER, MEMBERSHIP AND ASSETS  
OF STATE-CHARTERED CREDIT UNIONS

	June 30, 1956	June 30, 1958
Active Credit Unions .....	221	232
Total Members .....	80,043	83,658
Total Assets .....	\$19,241,841.94	\$24,544,900.47
Average Dividend Paid .....		.042%

NORTH CAROLINA CREDIT UNIONS  
CONSOLIDATED BALANCE SHEET

June 30, 1956

Cash in Bank and on Hand.....	\$ 2,208,213.29	\$ 1,703,626.92
Loans to Members .....	13,933,173.62	18,530,343.85
Investments and Bonds .....	2,245,634.10	3,829,265.13
Other Assets .....	854,820.93	481,664.57
	<u>\$19,241,841.94</u>	<u>\$24,544,900.47</u>

LIABILITIES

Shares .....	\$15,310,732.45	\$19,867,044.27
Deposits .....	1,084,991.67	1,100,242.62
Reserve Fund .....	1,226,106.77	1,372,311.40
Undivided Earnings .....	658,173.60	537,270.55
Other Liabilities .....	961,837.45	1,668,031.63
	<u>\$19,241,841.94</u>	<u>\$24,544,900.47</u>

## DAIRY DIVISION

C. W. PEGRAM

*Director*

The dairy industry is developing into big business in North Carolina. During 1957 Grade A milk production reached an all time high of 837,158,295 pounds, exceeding record production in 1956 by 10.3 percent. Fluid milk and cream sales likewise were up 5.3 percent over 1956. Milk imports reached the lowest level since records were started in 1946.

Many changes are taking place in dairying. Bulk tanks, milking parlors and in-place cleaning systems are being rapidly installed by producers. Processing plants are using paper bottles, short time pasteurizers, automation devices; and some milk is being fortified with vitamins and minerals. Enforcement of North Carolina's dairy laws is important, and the Dairy Division has attempted to keep pace with the growth and changes of the industry by stepping up its regulatory program.

The farm bulk tank movement has affected the pattern of butterfat check testing very materially. When milk was delivered in cans, samples were secured at the plant. The farm bulk tank system requires farm visits to take official samples, and it is estimated that 3,000 farm tanks are in use. Indications are that all Grade A dairymen will use them in the near future. Samples are also secured by tank routemen, 240 of whom have been examined and licensed to perform this service.

Practically all milk is marketed on the basis of butterfat content, which is highly variable. One of the important duties of the Dairy Division is to supervise the sampling and testing procedures covering 260 licensed samplers and 108 licensed testers. The Division has two well-equipped mobile dairy laboratories which are used on a year-round basis. The following plan of procedure is used:

1. Inspections of 61 butterfat testing laboratories, with special emphasis being given to equipment and apparatus.
2. Check testing of composite samples which are the basis of producer payments. In case errors are found, adjustments are required to be made.
3. Securing and testing of four fresh stratified milk samples, either at plant or dairy farm, for the purpose of comparison with licensed samplers' tests.



4. Observation of sample methods used by licensed samplers.
5. Training and examining of applicants for samplers' and testers' licenses.
6. Making special investigations upon request.
7. Mailing to producers official notices of test results.

Approximately 60,000 check tests were made during the biennium, involving 1,615 investigations.

Accurate sampling and testing requires that every step be taken properly. Carelessness and indifference have no place in this important work and when found, corrections are required to be made.

The supervision given to Babcock tests has resulted in more accurate testing and a better understanding between producer and buying plant.

Part of the Division's activities are devoted to the purity and wholesomeness of milk and other dairy products. Samples are purchased on state-wide basis and delivered to one of our three laboratories (one central laboratory in Raleigh and two mobile units). Laboratory tests are made for butterfat, milk solids, and bacteria. In order to maintain the standards of purity, our fieldmen are constantly checking manufacturing practices of our processors. A total of 6,583 samples were analyzed during the biennium. This work is important to the consumer and makes for fair play between competitors.

Adulteration of milk by the addition of water is an ever present threat to the industry. Usually it is caused by carelessness and indifference. The use of farm bulk tanks and pipeline milkers has aggravated this threat. An aggressive analysis program is being carried on, in cooperation with local health departments and industry. Since the freezing point of milk is one of its most constant physical properties, variations from the normal are used in detecting the adulteration of milk with water. The cryoscope is an apparatus used for accurately measuring the freezing point of milk. An improved type has been installed in the central laboratory, which has made for more rapid determinations.

In December 1958, the Board of Agriculture provided for the sale of fortified vitamin mineral milk. This new product has offered additional problems in regard to labeling and assays. To determine that the declared vitamin and mineral additions are present, it is necessary to submit samples to an out-of-state

biological laboratory for complicated assays. At present, 24 plants are offering these products to the public.

The matter of correct labeling of cartons occupies much time. The objective is to secure accurate and prominent labeling of milk and other dairy products in order that the consumer may fully understand exactly what he is buying and by whom it was processed or manufactured. For instance, one may easily confuse ice milk with ice cream. Enthusiastic salesmen and advertising personnel have presented many technical problems in regard to our labeling laws. Much progress has been made through cooperation from the dairy industry and carton manufacturers.

Another important phase of the work of the Dairy Division is administering the ice cream and frozen desserts law. This involves 60 wholesale establishments, and 250 retail "soft serve" plants which sell their product direct from the freezer to the consumer. The estimated production in 1957 was as follows:

	<i>Gallons</i>
Ice Cream .....	12,825,000
Ice Milk .....	5,802,000
Milk Sherbet .....	756,000
Water Ice .....	1,578,000

North Carolina ranks 16th among the states in the manufacture of these products. This supervision service is devoted entirely to consumer protection. As shown in the statistical summary at the end of this chapter, approximately 1,600 field inspections were made along with nearly 3,000 complete chemical and bacterial analyses. All manufacturers are licensed; and annual license fees of \$20 are paid by wholesale plants, and \$5 by "soft serve" operators. License and permit fees collected during the biennium totaled \$7,144.

The Milk Import Law requires that before milk or cream may be brought into the state permits must be obtained from the Commissioner of Agriculture by both the receiver and the out-of-state shipper. Enforcement of this law has provided higher quality milk to the consuming public. The dairy industry has cooperated by using available surplus milk before making application for out-of-state permits. This has made for higher returns for dairy farmers.

Fluid milk imports totaling 5,701,000 pounds during 1957 were at the lowest level since records were started in 1946. Imports in 1956 were 11,560,000 pounds.



The Dairy Division makes every effort to cooperate with all agencies interested in promoting quality, protecting the consumer, and rendering service toward building a greater dairy industry.

One of the Division's cooperative duties is making butterfat tests for the North Carolina Milk Commission. The Commission's rules require a minimum of 3.6 percent butterfat in all fluid milk offered for sale in this state. To avoid duplication of effort, the Department of Agriculture and the Milk Commission entered into a cooperative agreement whereby the Commission furnishes and equips a mobile dairy laboratory, and the Dairy Division of the Department provides the personnel to run the tests. The Division made 2,845 official tests for the Commission during the 1956-58 biennium.

The Dairy Division also makes butterfat tests of milk supplied to schools through the school lunch program. It also makes inspections of plants supplying frozen desserts to food contractors serving interstate carriers, such as air lines. This is another cooperative project which prevents duplication of effort.

Cooperation was also given to state and local health departments in many fields of endeavor, and every effort is made not to duplicate inspection services.

#### STATISTICAL SUMMARY

	1954-56	1956-58
Plant Investigations (butterfat check-testing).....	1,199	1,615
Milk Testers licenses issued.....	106	125
Milk testers examinations given.....	36	55
Milk sampler licenses issued.....		371
Milk sampler examinations given.....		195
Butterfat Check tests .....	39,410	52,710
Composite check tests .....	1,479	4,797
Butterfat tests supervised .....	354	1,933
Butterfat tests for Milk Commission.....	483	2,362
Butterfat laboratory inspections .....		180
Farm Bulk Tank inspections.....		239
Official butterfat notices sent to producers.....	3,000	3,500
Ice Cream plant inspections.....	1,201	1,592
Ice cream and frozen dessert samples analyzed.....	3,106	2,996
Ice cream establishments closed.....	5	3
Processing plant inspections .....	12	123
Gallons of milk embargoed.....	2,855	3,090
Lactometer tests .....	5,373	1,218
Cryoscope determinations .....	936	4,015

# DIVISION OF ENTOMOLOGY

C. H. BRANNON

*State Entomologist*

The activities of the Entomology Division have been widely expanded in recent years to meet new or expanded needs. Basic legislation, long on the statute books, gradually became inadequate to fully support all of this work. A new Plant Pest Law enacted in 1957 gives legal authority for work which has long been done, but for which statutory support was ambiguous.

The Board of Agriculture adopted a new set of nursery regulations on December 19, 1957, based upon the new *Plant Pest Law*. These regulations, which revise the nursery inspection fees, also give specific instructions for the enforcement of the law, as applied to nurseries in the state.

## NURSERY INSPECTION

The annual inspection and certification of the nurseries of the state constitutes the largest project of this Division. There are now 725 nurseries in North Carolina which must be carefully inspected, at least once a year, by trained and experienced staff members. Nurseries with difficult plant pest problems, or those under the special requirements of state and federal quarantines, may require repeated inspections and constant supervision for the certification and movement of their stock.

Nursery inspection alone requires the full-time services of three staff members for at least four months of each year. Fees must be collected and certificates issued before the nurseries can have their shipping tags printed. Each nursery is required to have an exact copy of its valid certificate printed on its shipping tag. These certificate copies must accompany all shipments or movements of stock from the nursery.

The nursery inspection fees are as follows:

First acre or fraction thereof	\$3.00
Each additional acre up to 10	1.00
Each additional acre 11 to 20	.75 per acre
Each additional acre above 20	.50 per acre

There are 535 nursery stock dealers in North Carolina. Dealers must file an affidavit with this Division, stating that they



will handle only certified stock. The source of their stock must also be stated. Movements of truck shipments of nursery stock are inspected at shipping points and warehouse centers. Movements by rail are checked at transit centers by federal inspectors, and by state inspectors within the state. Stores handling nursery stock are inspected as frequently as possible to see that their stock carries certificate tags from the state of origin. North Carolina allows entry of nursery stock from other states, provided valid certification tags from state of origin are attached. Valid North Carolina certificate tags are likewise accepted by other states.

### WITCHWEED

Witchweed is the latest addition to the North Carolina list of serious plant pests. First found in this state during the latter part of 1956, this parasitic weed is a terrific threat to the basic economy of the state and the nation. Witchweed has never before been found in the western hemisphere. When and how it reached North Carolina has not been determined. It has possibly been here for 20 or 25 years, from reports of farmers in the infested area.

Where heavy witchweed infestations exist, the corn crop is a complete failure; other small grains and grasses are also attacked by the witchweed.

A rapid survey in the fall of 1956 revealed a well-established infestation straddling the South Carolina line in the vicinity of Whiteville. Inspections were terminated by frost in the 1956 survey before a thorough investigation could be made.

Inspections in 1957 gave the following data:

Infested counties .....	8
Number of properties .....	278
Total acreage of infestation .....	23,830

This situation looked alarming. Meetings with farmers, Experiment Station, Extension Service, and federal officials were frequent during 1957.

Early in 1957, Dr. Edward L. Robinson was employed by the Experiment Station and stationed on the Border Belt Tobacco Station at Whiteville for full-time research on the witchweed problem. Progress was slow, due to the fact that no work had ever been done before in this hemisphere. Results of work done in India and Africa, especially the latter, were carefully studied.

Twelve acres of land were leased near Evergreen, in Columbus County, for field tests of any chemicals that looked promising in laboratory or plot tests.

The federal government placed into effect a quarantine against the witchweed on September 6, 1957, and the state witchweed quarantine, adopted by the State Board of Agriculture, became effective on October 14, 1957.

The witchweed is now found on 1,450 properties on 137,710 acres, located in eleven counties, as follows: Bladen, Columbus, Cumberland, Duplin, Harnett, Hoke, Pender, Richmond, Robeson, Sampson and Scotland.

Congress has recently appropriated \$3,000,000 for control and suppression of the witchweed because of its threat to the entire corn crop of the nation.

The witchweed is also found in eight South Carolina counties; it is not known to occur anywhere else in the western hemisphere.

#### IMPORTED FIRE ANT

The imported fire ant has swept over 9 southern states from an infestation located at Mobile, Alabama. This serious pest was brought in from Australia, or South America, in about 1918, and is now well established on thousands of acres of land. This ant, which has a very painful sting, destroys crops, kills young livestock and wild life, may kill a young child, and causes painful stings to any one attacked. These insects build large, hard-crusted mounds which may be 15 inches in diameter and 10 inches in height. Blades of harvesting machinery may be badly damaged in striking these mounds. Over 1,000 people have been seriously stung in one day in New Orleans.

A federal quarantine was placed in effect against this pest on May 6, 1958, but North Carolina was not included in this quarantine, due to the very small infested area in the state.

The infested areas in North Carolina, all of which have been treated, are as follows:

Brunswick County .....	12 acres
Mecklenburg County .....	218 acres
Onslow County .....	1,337 acres
<hr/>	
Total .....	1,567 acres



## SOYBEAN CYST NEMATODE

The center of the soybean cyst nematode infestation has shifted from North Carolina to the Mississippi Valley. Large infested areas were located two years ago in areas bordering the Mississippi River in Arkansas, Kentucky, Missouri, Mississippi and Tennessee. The infestation in North Carolina may have come from the Mississippi Valley area.

Let it be stressed that new discoveries of this pest do not necessarily mean new spreads. Infestations that may have existed for some years, being difficult to find, may have only been recently discovered. Federal and state quarantines have been in effect for some time and are being carefully enforced.

The infested areas of North Carolina are as follows:

Camden County .....	225 acres
New Hanover County .....	1,549 acres
Pender County .....	604 acres

## APIARY INSPECTION

The queen breeders in the state are carefully inspected each year and are issued certificates. Colonies were inspected in a wide area over the state in an effort to eradicate disease, where possible. Colonies infected with American foul-brood were destroyed unless, in the opinion of the inspector, the beekeeper was safely sterilizing with disease inhibiting drugs or antibiotics.

The bee inspection program consists in carefully inspecting, as mentioned, queen breeders and package bee shippers, as well as clean-up inspections in an area or entire county. Inspections were made for all those requesting such inspections. Certificates were issued to beekeepers whose colonies were to be moved to other states, when inspections proved them to be free of disease.

Inspection data is as follows:

	1956	1957
Queen breeders and package bee shippers certified .....	12	12
Colonies inspected .....	6,984	7,188
American foul-brood, colonies inspected ..	79	104
European foul-brood, colonies inspected ..	61	12
Apiaries inspected .....	694	568

## JAPANESE BEETLE

The Japanese beetle has now spread to all sections of North Carolina. Therefore, the large trapping and suppression program formerly supported by state and federal funds, has been discontinued. However, 10 temporary inspectors were used mostly in the western and eastern counties of the state for inspection of shipping centers, nurseries and greenhouses. This pest has now taken its place with the boll weevil, Mexican bean beetle, various tobacco pests, etc., which are established all over the state. It, therefore, becomes a problem for each individual or community to deal with according to their own means and desires. The money spent upon this pest by the state and federal governments is considered well worthwhile since the spread of the beetle was delayed for many years.

## WHITE-FRINGED BEETLE

There has been no change in the status of the white-fringed beetle since the last report, when 26 counties in eastern North Carolina were under quarantine. No additional counties have become involved, though some additional acreage in the infested area has been added.

Inspections and quarantine enforcement, in cooperation with the federal government, is going along very nicely.

## NARCISSUS INSPECTION

Narcissus inspection has continued on the same basis as for many years. Growers must make application for inspections, which are designed to keep narcissus fields free from nematode infestations.

North Carolina narcissus growers sell mostly cut flowers; bulb sales are not of large volume in North Carolina.

Inspection data is as follows:

	1957	1958
Acres inspected .....	89	110
Properties infested .....	2	2

## INSECT COLLECTION AND IDENTIFICATION

The vast insect collection of this Division, which consists of over a million specimens, is being transferred to modern cabinet shelves, which are of the latest design. The old Schmidt boxes,



from which they are being moved, will be used for receiving, transferring and shipping to specialists for determination. The transfers will be completed during 1958, when all specimens will be safely stored in air-tight, pest proof cabinets.

#### ASHEVILLE AND WILMINGTON OFFICES

This Division maintains an inspector at Wilmington and Asheville to carry out our activities in those areas. The Asheville inspector supervises the inspection of large collecting areas of native stock and cooperates with Federal and State Forestry officials in the enforcement of the white pine blister-rust quarantine. All suppression and control of forest pests is under the supervision of the State Forester.

#### U. S. DEPARTMENT OF AGRICULTURE

Much of the inspection, survey and quarantine enforcement of this Division is carried out in close, cordial cooperation with the Plant Pest Control Division of the U. S. Department of Agriculture, whose local offices are in the Capitol Club Building in Raleigh.

#### EXPERIMENT STATION AND EXTENSION SERVICE

Close cooperation is maintained with research staff members of the N. C. Agricultural Experiment Station and the Agricultural Extension Service, in all problems which vitally affect North Carolina agricultural recovery.

## DIVISION OF MARKETS

JOHN A. WINFIELD

*Director*

If North Carolina farmers had been averse to changes, and unwilling to adopt new practices and techniques in their farming operations during the 1956-58 biennium, the results could have been disastrous. Fortunately, however, customs were cast aside; new enterprises were given a chance and, in general, farmers prospered despite the many factors that tended to work against them.

It was not an easy task for them. Major adjustments were necessary and the large outlays of capital which were required in many instances raised the stakes in their "game of chance" to almost unthought of levels. Economic conditions made this possible for some; impossible for others.

Weather conditions, always a major threat to the farmer, left much to be desired during the two-year period. Optimum conditions prevailed only for brief periods, and quality and yields were materially affected. Such conditions increased production costs and served as a hindrance to orderly and efficient marketing.

It was largely a result of these circumstances that prompted Division personnel to use a more direct approach in assisting producers and others with their marketing problems during the biennium. Appropriately referred to as the "button-hole" approach by many who have observed the results of its application, it involved making the necessary recommendations for getting an efficient job done and the necessary follow-up work to see that the suggested recommendations were properly carried out. This naturally involved a large number of personal visits to individual producers, buyers and sellers. But by following through on the various problems and actually assisting in the elimination of them, worthwhile results were obtained. Had it not been for the cooperative efforts of Extension Service personnel, research workers, vocational agriculture teachers, the Department of Conservation and Development, farm groups and others, this saturated effort could not have been as effective as it proved to be during the 1956-58 biennium.

Only the surface has been scratched in this endeavor. However, two years of experience and proved results of its effectiveness have strengthened the hopes of Division personnel that greater



and lasting efficiency in the marketing of North Carolina's agricultural products can be brought about.

The Division of Markets is appreciative of the splendid working relations it enjoyed with other agencies during 1956-58. It is the desire of the Division to continue this cooperative approach so that greater efficiency in the marketing of all agricultural commodities can be realized as quickly as possible.

Following is a summary of activities for the past biennium in the various phases covered by this Division:

### TOBACCO

During the past biennium the tobacco industry experienced revolutionary changes that affected growers, as well as manufacturers of tobacco products. The rapid changes were brought about principally by the shift in consumer preference for filter tip cigarettes. These changes reduced the total use of flue-cured and burley tobacco resulting in fewer acres planted.

Changes in buying patterns of companies, and increased use of processed tobacco in sheets, also contributed to an uncertain market and weakening demand for certain grades.

The situation at present is the most critical faced by tobacco growers since the beginning of the tobacco program, 24 years ago.

In terms of loss to tobacco growers these shifts have meant about a 130-million dollar drop in North Carolina tobacco income.

In order to offset as much of the loss as possible, every effort was made to assist growers in preparing, sorting and marketing tobacco to meet grading and buying changes.

In rendering this service, group meetings were held in cooperation with vocational teachers, county agents, farm organizations and individual farmers. Two phases of the problem are approached in these meetings. First, farmers are given a thorough analysis of the tobacco situation as it relates to stocks on hand, domestic and export disappearances, changes in consumer preference and developments in the industry. These factors establish the trends that determine the kind of tobacco that will be in strongest demand during the coming season, and such analysis gives the grower a chance to adjust farming practices to market demand.

The marketing phases deal with farm sorting and market preparation problems. These are subjects of practical demonstrations on the farm and in tobacco warehouses. Growers at-

tending these meetings are shown a simpler method of sorting tobacco into standard grades. Display demonstrations on warehouse floors are also part of the service program. In carrying out this program during the 1956-58 biennium, specialists held 221 group meetings which were attended by 6,134 farmers.

North Carolina statutes require that the Division of Markets issue a monthly report of tobacco warehouse sales. During the biennium this report was distributed to a mailing list of 1,200, including growers, warehousemen, dealers, press, radio, civic and farm organizations.

The North Carolina "Tobacco Report" was prepared and distributed to 6,000 members of the industry each year. Information on prices, trends and other related subjects was also prepared for newspapers, magazines, radio and TV programs.

#### SUMMARY OF OTHER ACTIVITIES

	1956-57	1957-58
Warehouses visited .....	311	310
Farm organization meetings .....	18	14
Civic Clubs .....	7	14
Industry meetings .....	14	16
Radio talks .....	8	11
Magazine articles .....	6	9
Tobacco organization meetings .....	15	11

#### COTTON AND ENGINEERING

Activities of the Cotton and Engineering Section include services in the marketing of cotton, and technical or engineering assistance to other commodity sections in the Division of Markets.

Cotton services are designed to: (1) Preserve the grade and quality values of cotton and cotton seed in pre-ginning handling, ginning and storage; (2) provide the trade and state agencies with laboratory test data on the fiber properties of North Carolina cotton; (3) improve and integrate the operating policies of all raw cotton interests, particularly those of ginners and initial cotton buyers; (4) cooperate with and supplement cotton programs of other agencies and organizations.

Of the three factors determining grade values of cotton fiber—color, smoothness of ginning, and trash content—the last two involve gin processing, and are controllable. Cotton ginners have many opportunities to assist their customers in the marketing of cotton. As engineers, our specialists are qualified to design, erect and operate modern gin facilities and to instruct ginners with respect to operating techniques. Their ginner contacts afford many opportunities to promote recognition of grade and



staple values at the initial marketing level and to assist ginnermen in providing buying and selling services for their customers.

Within recent years the use of laboratory test results on cotton fiber has become essential to efficient cotton spinning and the selection of cottons for specific end uses. The Division of Markets operates a cotton-fiber testing laboratory and releases, at two-week intervals, laboratory reports on cotton from 27 selected points in the state. These reports facilitate the marketing of North Carolina cotton and increase the demand for it.

Cotton work for the biennium includes 1,119 gin visits, 110 cotton mill contacts and attendance at 120 cotton meetings.

Technical or engineering assistance to the corn milling industry in North Carolina is a continuing assignment to this section. Services to the milling industry are conducted in close cooperation with the State Chemist and the Grain Section of the Markets Division. Objectives of the program are to: (1) Improve sanitation in handling and processing corn for human consumption; (2) improve the design, construction and use of mechanical elements and facilities used by the corn milling industry; (3) standardize milling corn procurement activities; (4) elevate the operating policies of the industry and allied interests.

Field procedures are patterned after the cotton ginning program and require approximately 275 mill visits annually. Our specialists cooperate with the industry in promotion and development activities.

The need for technical assistance with pre-marketing operations becomes increasingly urgent as agricultural enterprises in the state become more diversified and as modern merchandising of farm products requires more and more marketing processing, conditioning and handling. Practically all commodities require some grading or sampling or treatment of one kind or another in marketing channels. Farmers' markets, assembly plants and buying stations have traffic and other operational problems. Practically all use one or more items of mechanical equipment. The success and permanency of an agricultural enterprise often are determined by the location and efficiency of processors.

Engineering services provided by this section are designed to fill the need between "no engineering" and the professional talent employed by heavily capitalized firms and corporations. Our services are available to other commodity sections of the Division of Markets, all divisions of the Department of Agriculture, and other state agencies.

Activities of our engineers during the biennium include the design of a swine disease diagnostic laboratory, a slaughtering and meat packing plant, a sweet potato curing and storage facility, a vegetable cooling device, and a method of bulk handling and sampling of peanuts. Assistance to the Grain Section included advising on the construction and improvement of 28 storage and handling facilities, feed manufacturing installations and commercial seed processing plants.

### GRAIN

Continued progress is being made in the construction of new and additional grain handling, storing and marketing facilities throughout the state.

During this two-year period, six firms built new facilities totaling 558,000 bushels of storage capacity. Twenty-five firms added 1,469,000 bushels to existing plants. Grain producers built 3,687,000 bushels of storage capacity on their farms, bringing the total on and off-farm storage capacity within the state to 26,721,000 bushels. Nine firms are planning the construction of 1,960,000 bushels of storage facilities for 1958-59.

New and expanded grain storage facilities have increased the efficiency in grain handling and merchandising. They have also brought about a more competitive and stable market which, in turn, has increased the net returns to producers. With more storage facilities available in North Carolina, untold dollars have been saved and will continue to be saved from freight on grain out of the state at harvest and back in for feed during the remainder of the year.

Market outlets are not only expanding through new and added grain facilities, but also through new and existing feed processing plants. This expansion has come about primarily as a result of sharp increases in the production of poultry, particularly broilers. An example of the expansion in broiler production, which caused the need for feed processing and in turn resulted in expanded outlets for grain, is found in the Rose Hill area. Three small feed mills in this area are processing approximately 1,300,000 bushels of corn per year. This is approximately one-half of the average corn production for the county. This rapid increase in grain consumption is also seen in other parts of the state.

To further expand outlets for the increasing production of soybeans, Gurley Milling Company in Selma is building a solvent



processing plant; Buckeye Cellulose Corporation in Raleigh is installing the solvent process also, and other firms may shift to the solvent method for extracting oil from soybeans. This will enable processors to meet competitive prices because more oil can be extracted and their operations will be more efficient.

The increase in grain handling facilities resulted in more requests from firms for assistance in operating elevators, dryers and grading equipment. This involved synchronizing the receiving of grain with the size and speed of handling by the elevator, and with the cleaning and turning equipment. Assistance also included checking grain dryers while they were in operation and instructing plant operators in the proper use of grain grading equipment. In conducting this work, specialists made 557 visits to grain handlers, elevator operators and processing plant managers.

To further train operators in the grain business, seven grain grading demonstrations were held with 447 attending. Specialists in the Grain Section cooperated with the N. C. Grain Production and Marketing Committee in two Statewide Grain Schools with 76 attending, and 18 county schools with 374 attending. At the grain grading demonstrations marketing specialists also explained the importance of merchandising grain on the basis of grade and quality, and discussed commercial facilities and marketing methods in North Carolina.

Specialists cooperated with the North Carolina Extension Service in making surveys to determine the need for grain facilities in the areas of Selma, Kinston, Fayetteville and Rose Hill. These surveys included grain production, grain facilities, estimated operating cost, estimated marketable grain and an estimated income. As a result of these surveys, one firm is constructing storage facilities for 100,000 bushels, and plans have been completed for another with 150,000 bushel capacity. In addition, two others, which will have a capacity of 500,000 bushels, are in the development stage.

Requests from commercial firms for grain inspection and grading during the harvest period is indicative of the increased interest among our grain trade in buying and selling on a grade and quality basis. Four additional full-time inspectors were placed at elevators during the two-year period. These inspectors are paid from the Department's Cooperative Account Fund, and all fees for inspections are paid into this fund.

Inspection of all official moisture meters within the state were made each year of the biennium and corrections for accuracy

were made where needed. Specialists also trained personnel to operate the moisture meters and other grading equipment.

Another primary function of this section is to certify grade and quality of all grains, soybeans and hay upon request from commercial grain storage facility operators, feed and oil processing plants, brokers and handlers of hay. This service promotes the merchandising of grain and hay on a quality basis and assures buyers and sellers of receiving the quality of products they purchased. In this work during the biennium, specialists supervised the inspection and grading of 10,371 lots of grain and made 1,065 condition reports, representing 7,941,351 bushels of grain. There were 17 hay inspections made representing approximately 170 tons.

A new program in seed service and marketing is being initiated by this section. This program is designed to assist seed cleaners, seed handlers, and distributors in processing and marketing the highest quality seed possible throughout the state. Special efforts will be made to encourage proper seed treatment, seed drying and the production of seed specifically for seed purposes. The following groups assisted in developing this program: N. C. State College Extension Service and Experiment Station; N. C. Crop Improvement Association; Seed Testing Laboratory, N. C. Department of Agriculture; and the N. C. Seedsmen's Association.

#### FRUITS AND VEGETABLES (Grading and Regulatory)

The inspection and certification of fruits, melons, peanuts and vegetables continued to be a major activity. This service is rendered to producers, shippers and receivers upon request. Grading is done on the basis of established U. S. Standards as adopted by the State Board of Agriculture. Buying and selling on the basis of established uniform standards is a basic part of orderly marketing.

Properly trained inspection personnel is essential in the performance of the inspection work. During the 1956-58 biennium, 141 inspectors were trained, 211 experienced inspectors were given refresher courses and nine key-man personnel conferences were held by the supervisor. At the peak period, 285 inspectors were employed.

Shipping Point Certifications work for the biennium amounted to: 10,500 carlot equivalents of fruits, vegetables, melons, cleaned and shelled peanuts; 305,527 tons of farmers' stock peanuts delivered to millers and government warehouses by producers, and 27,458 tons graded out of storages for CCC. Inspections at



auctions amounted to 1,678,718 packages of various vegetables and berries and 837,955 bushels of sweet potatoes. Receiving market inspections totaled 883 carlots of various fruits and vegetables for wholesale receivers, and 5,946,832 pounds of produce for delivery to military installations and state and federal institutions.

Inspection of string beans for delivery to processors conducted at Edenton, Pantego and Washington, and sweet pepper inspection work was performed at the Dunn processing plant.

Regulatory activities were chiefly the enforcement of the Handlers' Act and the Seed Potato Law. Contracts between producers and processors were checked and approved or returned for correction and the financial responsibility clause checked for compliance. Approximately 322,000 sacks of seed potatoes were checked for compliance with the Seed Potato Law. These measures have contributed heavily to the protection of producers in avoiding unscrupulous dealings.

#### FRUITS AND VEGETABLES (Service)

The greatest needs in fruit and vegetable marketing in North Carolina at present are: (1) Better packaging; (2) more uniform quality; (3) reduced handling costs; (4) reduction of waste; (5) more effective advertising; (6) assembling quality produce in quantity to attract larger buyers.

During the past two years, the approach to these problems was through cooperation with other state and federal agencies, as well as with grower and shipper organizations and other groups. Close contact was maintained with state and federal research projects relating to improved marketing practices in fruits and vegetables, and the results were applied wherever possible.

Among the special projects Division specialists conducted or cooperated in were:

(1) Continuing to assist peach growers in their advertising program, and assisting in conducting the peach referendum whereby growers assess themselves a fee for promoting the peach industry.

(2) Continuing to assist potato growers in promoting and advertising research and other promotional purposes.

(3) Cooperating with various agencies in planning and promoting the Raleigh Farmers' Market; making surveys of fruit and vegetable production in a 100-mile radius of Raleigh and aiding in the original market operation. One Division specialist

was assigned to the market to assist small farmers in improving their grading and packaging.

(4) Continuing to issue fruit and vegetable bulletins which listed the products available, harvesting dates and location of the various products. These bulletins were sent to produce buyers in 20 states.

The results of these projects were encouraging. Peach, potato and vegetable growers were aware of the necessity to change to more modern marketing practices in order to meet competition. Along this line, many of them installed modern precoolers and improved grading and packaging equipment.

Other activities during the biennium included:

(1) Participating in 153 conferences on processing crops. These meetings were attended by 2,567 persons, mainly research and extension workers, bankers and other farm leaders.

(2) Assisting 65 county agents with various marketing problems.

(3) Participating in 74 group meetings of producers, integrated with research and extension personnel. Attendance at these meetings totaled 2,325.

(4) Assisting 195 producers in marketing or determining what crops to produce for market.

(5) Conducting 288 demonstrations on treating and bedding sweet potatoes, attended by 1,331 producers.

(6) Assisting regulatory section in making 24 inspections at terminal and shipping points.

(7) Assisting four firms in securing certified seed and in marketing their processed products or securing contractual acreage.

(8) Assisting 13 fresh market facilities in installation of equipment and improvement of operations.

(9) Conducting promotional meetings on peaches, watermelons, potatoes, onions, snap beans, strawberries, and other vegetables.

(10) Taking 80 color slides for use in promoting proper grading and packing of vegetables.

(11) Holding 1,767 personal interviews with producers on varieties, harvesting, grading, packing, assembling, and marketing.

(12) Assisting 34 vocational agricultural teachers with better marketing practices for future young producers of vegetables.



(13) Procuring more than 4,000,000 certified sweet potato plants for 163 producers.

(14) Assisting in starting a new sweet corn project in Halifax county and a sweet potato and watermelon project in Bertie county.

(15) Continued assistance in the onion marketing project in Robeson County and the pepper project in Harnett County.

(16) Continued to assist Irish potato growers through the N. C. Potato Association, Inc., in 13 eastern counties.

### LIVESTOCK

Livestock is an expanding enterprise in North Carolina and is becoming more important in the state's agricultural economy each year. The Division's aim in livestock marketing is to increase marketing efficiency so that the present production pattern can be maintained and our farmers can continue to expand and be assured of profitable returns from this important enterprise.

Continuing to work closely with other agricultural agencies, Division specialists graded and assisted in selling more than 11,500 head of feeder calves in 21 organized sales during the 1956-58 biennium. Five yearling feeder cattle sales were held in which more than 5,500 head of cattle were sold. Cattle marketed through these sales were sold in uniform lots by grade and weight, and brought producers an average of \$2.00 to \$5.00 per hundred more than local sales averaged for feeder cattle of equal quality.

Combination fat and feeder cattle sales were held in the winter and spring of each year of the biennium. The approximately 6,000 head of cattle sold in these sales were graded as slaughter cattle or feeder cattle and sold in groups. In 1958 a special graded sale for fat and feeder cattle was inaugurated at one auction where a sale is now being held each month. Special efforts were exerted by section personnel to secure out-of-state packer and feeder buyers for these sales. Their support, along with that from local packers and feeders, contributed much to the success of both the fat and feeder cattle sales. Division specialists assisted producers in marketing over 4,000 head of fat cattle direct from farms to packers.

During the biennium, section personnel purchased through sales and at private treaty over 4,000 feeder cattle for North Carolina feeders. The purchase of another 4,000 head of North

Carolina cattle for out-of-state feeders tended to stabilize the market.

Endeavoring to improve the quality of commercial and purebred cattle in North Carolina, section personnel assisted in conducting 38 purebred cattle sales in which more than 3,000 head were sold.

Assistance was given sheep producers in organizing and selling wool pools in which over 445,000 pounds of wool were sold. Wool was collected at Washington, Durham, Salisbury, Asheville, Newland, Boone, West Jefferson and Sparta each year.

More than 23,000 lambs were marketed through 60 lamb pools. Pool schedules were arranged, lambs graded and buyers secured for the lambs. In addition 2,892 lambs were graded and sold through weekly auctions.

A definite increase was shown in purchasing breeding ewes. A total of 4,435 western yearling ewes were purchased and distributed to producers during the biennium by use of the revolving fund. In addition, 750 western ewe lambs were purchased and grown out for yearling ewes, making a total of over 5,200 additional ewes. One purebred ram sale was held in which 45 purebred rams were sold. Section specialists purchased 52 additional rams for farmers.

A new program of live hog grading at hog buying stations and auction markets was started in September 1957. Sixteen grading demonstrations were conducted at auction markets before the grading program was initiated. Six graders were employed and trained by Division specialists. At present, this grading service is being conducted at 10 points within the state, and approximately 50,000 hogs have been graded since the service was inaugurated. Assistance was also given with planning and conducting 43 purebred hog sales.

The livestock section also helped in the development of organized feeder pig sales, and assisted in assembling and moving feeder pigs from the western part of the state to the eastern Carolina corn area.

Grading of beef, veal and lamb carcasses at leading plants over the state has greatly increased. Specialists are now grading in 14 plants over the state. During the biennium, 32,285 head and approximately 18,063,310 pounds were graded, using N. C. D. A. grades. Packers using this service increased their business materially and some of them built new facilities to expand and improve their operations.



A new service started November 15, 1956, is inspection of all meats and meat by-products sold to state institutions. It is required that these products be inspected before deliveries are made to ensure that they conform with state specifications. Approximately 5,983,507 pounds were inspected during the biennium.

Continued assistance was provided in improving livestock marketing facilities within the state. Many of the packing plants were assisted in improving their operations and facilities. The beginning of construction on a packing plant in eastern North Carolina by one of the nation's major meat packing concerns is evidence of the increased emphasis being placed on livestock production in this state. This company has already expressed confidence in being able to get its entire kill for this plant (approximately 250,000 hogs and 35,000 to 50,000 cattle annually) within the state. The trend in production since announcement of the proposed plant indicates that such numbers will be available.

It was largely through the efforts of Division personnel that this company was prompted to establish a plant in North Carolina. Many other state agencies and interested groups also assisted in promoting its establishment.

#### POULTRY AND EGGS

The Poultry Section of the Division of Markets made a concerted effort during the biennium to increase its marketing services in line with the sharp increases that occurred in the production of poultry and eggs. During this period, North Carolina changed from an importer of shell eggs to an exporter.

Along with the increase in shell egg production and consumer demand for quality eggs came a greater demand for services of marketing specialists in finding additional market outlets, teaching grading techniques, promoting better care of eggs on the farm and assisting with other related problems. During the biennium, some 250 producers were visited to observe and assist them in their egg handling, grading and packaging methods.

In cooperation with the Extension Service, 20 egg grading schools were held in which approximately 500 persons were trained to grade shell eggs according to USDA Standards.

Technical assistance was given six firms in setting up shell egg grading services as well as helping in the procurement, grading, and care of eggs. Specialists participated in 46 conferences relative to egg care, procurement, grading and marketing.

Specialists of the poultry section visited 2,315 retail stores and 875 distributors in checking compliance with the North Carolina Egg Law. Assistance was given to retail stores on displays, refrigeration and storage problems, while the distributors were assisted with packaging, labeling and candling of eggs.

The North Carolina Egg Marketing Act was instrumental in bringing about the following:

1. Better quality eggs for consumers through close adherence to carton labeling which truly represents the eggs in the carton.
2. Preventing outside shippers from using North Carolina as a dumping ground for low quality eggs.
3. Encouraging the production of market eggs and making a year round supply available in North Carolina, with a surplus of such quality as to command the attention of outside markets.

Mandatory inspection of poultry moving in interstate commerce will become effective January 1, 1959. This has brought about an increase in the number of requests for assistance in drawing floor plans for construction of new processing plants and the remodeling of existing plants. These changes were necessary in order for the plants to be more efficient in their operations and meet the qualifications for U.S.D.A. Inspection. Assistance along this line included:

- (1) Drawing floor plans for 34 processing plants;
- (2) Accompanying USDA Veterinarians and assisting them in making surveys for 29 plants desiring inspection;
- (3) Making 236 plant visits to assist them in obtaining more efficient processing, as well as improving their grading and packaging.

On July 1, 1958, nine processing plants in North Carolina were operating under U.S.D.A. Inspection. Four of these were under Compulsory Inspection and seven had official grading under Federal-State Supervision. Resident poultry graders graded 116,854,476 pounds of chickens and turkeys during the biennium. A considerable amount of this poultry was sold to the Armed Forces.

Official egg grading was inaugurated during the biennium in four places: Armour & Company, Greensboro; Farmers Exchange, Durham; All Star Mills, Inc., Albemarle; and Township #3 Egg Producers Association, Shleby. The service at Shelby is unique in that it is believed to be the only official grading



service permitting the producer to candle, size and pack his eggs on the farm under a limited license with USDA grade designations. Graders on 20 farms in the area package shell eggs and deliver them to a central warehouse where the candler's accuracy is checked by a Federal-State grader. Much interest is being shown in this project and similar operations are expected to be established in other areas.

During 1957, marketing specialist participated in the School Lunch Egg Program, grading 36,124 cases for the Commodity Stabilization Service of the USDA. Grading for state and federal institutions during the biennium consisted of 672,504 pounds of poultry, 54,522 cases of shell eggs and 41,776 pounds of frozen eggs.

The 1957 Southeastern Egg Grading School was attended, and Division Specialists participated on the program. The 1958 school, which was held at N. C. State College, was the first to be held in North Carolina. Specialists cooperated with personnel of State College and the Southeastern Poultry & Egg Association in making arrangements for the school and in notifying prospective students. Six states were represented at the school.

March Egg Month, a nationwide endeavor by poultrymen to encourage use of shell eggs, was headed by this section in 1957 and specialists, in cooperation with the Extension Service and the poultry industry, planned, prepared for and carried out the plans during March. Approximately 50 meetings, including area meetings and area breakfasts, were attended and participated in relative to the planning and promotion of the project. The main event of the month was the kickoff breakfast, at which the Governor spoke. Assistance was also given in planning and promoting March Egg Month in 1958.

#### DAIRY

The basis of the dairy marketing service program is to assist individuals and groups with ideas, materials, and other means of seeing the need for increasing milk consumption and of stressing the necessity of taking action in this direction. Much of the work is carried on in public schools where the children, all of whom are potential consumers, are more easily influenced than when they become adults. The Special Milk and the School Lunch Programs offer financial assistance to make milk available at a reasonable cost to children.

Production of Grade A milk in 1957 was 10.3 per cent over

1956, and the outlook for continued growth is excellent. Steady increase in fluid milk and cream sales continues, but not at the same pace with production.

A total of 467 illustrated talks and demonstrations were given to 59,500 school children and 3,500 adults by the dairy marketing specialist during the biennium. The major portion of this work was done in 186 schools; but talks to Parent-Teacher Associations, civic clubs, professional organizations, teacher groups, college classes and other groups were also included.

One of the outstanding events of the dairy industry during the biennium was the dairy exhibition held at the State Fair in 1956. In cooperation with other branches of the dairy industry, countless meetings were held and untold hours of work were spent in planning and displaying the different phases of dairying in North Carolina. In addition to numerous exhibits this successful event featured the first State Dairy Princess contest and a visit from the American Dairy Princess. Excellent radio, television and press coverage added to the effectiveness of this promotion.

Each year June Dairy Month observance is a cooperative promotion which increases in importance. The N. C. Dairy Industry Promotion Executive Committee, of which the dairy specialist is a member, is responsible for much of the initial planning. This committee also aids various groups in carrying out actual work on area and county levels where the real benefit is derived.

The State Dairy Princess contest has become a vital part of Dairy Month promotion. One of the requirements of a contestant is that she be a consumer of dairy products. Approximately 1,000 young ladies, potential homemakers, participated in the 1958 contest.

Cooperation was extended to professional organizations such as the N. C. Public Health Association and the N. C. Home Economics Association, the N. C. Congress of Parents and Teachers, the 4-H Dairy Demonstration participants, the School Lunch Staff, the State College Extension Service, and many others in an effort to increase milk consumption. Though much of the work is done individually, there are many times when more effective results can be realized by pooling resources with other groups who are interested in public welfare. Consumption of dairy products in adequate amounts is tremendously important to the welfare of the public and the dairy farmer.

Promotion and other programs are proving effective as indicated by the increased consumption of milk by children to 120,-201,412 half pints in 1957-58 as compared with 71,555,547 half



pints in 1953-54. Over-all sales of fluid milk and cream have also shown a steady increase. Figures for 1957 show an increase of 5.3 per cent over 1956.

### COOPERATIVE

In response to requests, assistance was given to farmers in organizing 31 new cooperatives. These organizations were planned with the idea of helping farmers with their marketing, purchasing and service work. In addition, six educational or promotional associations were aided in their organization.

Assistance to these associations included determining their need and probabilities for success, explaining state and federal laws and preparing charters, by-laws, marketing agreements and membership certificates. Management, practices, financing and record keeping were also explained. Most of these associations were small and sprang up where a definite marketing need developed.

The largest group to seek organizations were the fruit and vegetable farmers. These varied from the apple growers in the west to the fresh vegetable growers in the east. Most associations had considerable difficulty in disposing of their products in such a way that their members could operate and show a profit.

The next large group to seek help was the dairy people. Much interest was shown in improving their dairy testing program in order to operate efficiently, and they grouped together in small associations so that this service could be rendered at a reasonable charge on a cost basis.

Considerable assistance was given the well established cooperative and mutual associations in improving or revising their charters and by-laws to meet the changes in new federal and state revenue regulations. Several associations were assisted in adding new equipment and in expanding their operations to take care of increased production of their members, and to better market their products by giving their customers more and better service.

The cooperative and mutual associations are required by state law to file an annual operating and financial report with the Division. This section analyzes these reports and gives constructive suggestions if improvements are needed.

The North Carolina law requires agricultural fairs to meet certain minimum standards and it is necessary to make inspec-

tions of the fairs each year. This work was carried out, with the help of other employees of the Department, to improve the fairs and encourage more farm participation.

### TRANSPORTATION

The Transportation Section services other sections of the Division of Markets. It also works directly with the Commissioner, Assistant Commissioner, farm groups and farm organizations, on state or national legislative matters dealing with transportation directly affecting agriculture.

Typical of service to other sections of the Division of Markets, is the auditing of freight bills covering livestock purchased and distributed, the filing of claims, procurement of operating rights from the N. C. Public Utilities Commission for agricultural truck haulers, participation in rate increase cases before the North Carolina Public Utilities Commission or the Interstate Commerce Commission, furnishing rate quotations where needed, and providing consultation service on any transportation matter which may arise.

Unfortunately, major changes in transportation policies are usually long and drawn out, involving quasi-legal if not legislative consideration. Rate cases before the regulatory bodies frequently run for years. In the 1954-1956 report, reference was made to the filing of a grain complaint by the southeastern states through the Southern Governors Conference, instigated largely by North Carolina. The final hearing in this case was held in Palm Beach, Fla. in the late Spring of 1958, no decision yet having been rendered by the Interstate Commerce Commission. However, in August 1957, the railroads, because of this complaint, voluntarily reduced the rates on grain within the south and to and from the south, approximately 20 per cent. The railroads further agreed to reduce the rates on flour and grain products to a differential of 115 per cent of the reduced grain rates. The N. C. Public Utilities Commission directed the handling of this case and deserves commendation for its outstanding cooperation.

In 1957, the railroads voluntarily restored the transit privileges on grain which they had previously taken away in 1955, threatening many of North Carolina's small mills with extinction. This "voluntary" restoration occurred only after numerous hearings and meetings.

Certain rail rate cases involving general increases, originally



authorized in 1953 and appealed to the courts by the Department of Agriculture through the Attorney General's Office, are still before the North Carolina courts. Many thousands of dollars in possible refunds are involved and the railroads have extended the time of recognition of claims to six years.

Negotiations have been conducted, and are being continued, to bring about direct air cargo service to North Carolina, particularly to serve growers of gladiolas, chrysanthemums, orchids and other horticultural products. The cargo space available on presently operating commercial air lines is not sufficient, at least during peak seasons of movement.

In 1956, the Interstate Commerce Commission authorized acquisition by the Southern Railway System of the A & E C Railroad from Goldsboro to Morehead City, N. C. This established the first single line operation from the Atlantic Coast of North Carolina to the Mississippi River. It has occasioned reduction in rates to all points on this stretch of railroad, eliminating former so-called "short line" arbitraries. Certain reductions have been proposed on export traffic to Morehead City, but final action has not been completed because of competitive opposition by the Port of Wilmington. The Department of Agriculture has assisted in procuring additional export grain facilities at Morehead City.

Inasmuch as national transportation policies cannot be influenced or changed by a single state, North Carolina has led in trying to organize various State Departments of Agriculture to coordinate efforts for the protection of present agricultural transportation interests or to act in unison in procuring such changes as may be determined to be of mutual interest.

The Commissioner of Agriculture of North Carolina is Chairman of the Transportation Committee of the National Association of State Departments of Agriculture. Under the direction of that organization, a Southern States Transportation Committee of Departments of Agriculture was formed in early 1958. The states of Alabama, Florida, Georgia, Tennessee, North Carolina, Louisiana, Texas and Kentucky, now form the committee, with the expectation that South Carolina and Mississippi will add their support within a few months. For the first year, North Carolina has been designated as chairman of the southern states committee.

This committee has actively participated in pending legislation to be enacted by the present Congress. Correspondence and direct contacts have been maintained with members of the House

and Senate Interstate and Foreign Commerce Committees, as well as with other members of Congress. This committee endorsed the repeal of the federal excise tax of three per cent on freight, effective August 1, 1958.

The committee, of which North Carolina is chairman, has also actively participated in the pending legislation affecting railroad rate making, the freezing of agricultural exemptions, and the proposed establishment of a Congressional study group to review national transportation policy. Indications are that the legislation to be adopted will not hurt agriculture, even though no specific benefits will be derived.

The Department of Agriculture is interested and will participate in N.C.P.U.C. Docket No. T-825-Sub. 20, an investigation ordered on January 22, 1958, on the motion of the N.C.P.U.C., into the intrastate common motor carrier rates. The case is now set for hearing in September 1958, but will probably take several years to complete. A study is being made by the Department of Agriculture Transportation Section to show that the farmer or resident in rural areas has to pay much heavier freight charges than the shipper or receiver in the larger communities served by regular rate carriers. The irregular route carriers are not permitted to exchange freight or have combination rates. It is possible that legislation may be required to correct this situation.

The North Carolina Department of Agriculture, where possible, cooperates with the North Carolina Shippers League and holds a directorship on the Board of Governors of that organization.

#### MARKET NEWS

Continued expansion in the production of certain agricultural commodities during the 1956-58 biennium required several major changes in procedures for reporting the market on these commodities.

To more adequately meet the public's need for market information, the Division's market news service was forced to greatly expand its coverage on poultry and egg markets and to completely reorganize its service on the markets for grain. These changes were made at practically no additional expense to the state, due to the cooperative agreement with the U. S. Department of Agriculture, and they resulted in a vastly improved service on the commodities involved.

One of the most significant changes was the consolidation of the three-area market report on commercial broilers into a state-



wide report. Instituted with this change was a new technique known as "volume-price" reporting. This not only lessened the chance of error in reporting the market, but also made possible a more realistic report to producers and tradespeople. The industry strongly encouraged this change and has actively supported it through cooperative participation.

Prior to August, 1957, egg prices had been reported on the Raleigh, Durham, and Charlotte markets based on ungraded eggs bought on a graded out basis. As more and more eggs were being sold on these markets on a clean, sized, minimum quality basis, our market reports became rather meaningless in that they reflected prices paid for only a small percent of the eggs bought and sold at these points. Therefore, with general approval of the industry and with excellent cooperation on the part of buyers and distributors of eggs, the basis for reporting eggs at these points was changed to: "Prices paid by distributors for clean, sized, minimum 80 per cent A quality."

This change in reporting the egg markets aided producers in getting a higher price for their eggs and encouraged many of them to do a better job of marketing. Industry support of this change has been highly gratifying.

The continuing increase in egg production and the rapidly changing pattern of marketing has created the need for expanded coverage of egg markets throughout the state. No satisfactory approach can be taken to this problem, however, until marketing practices develop into a more uniform pattern.

Budget limitations, plus some rather major changes in the marketing of grain within the state, increased the necessity for changing the procedure on reporting the market for grain during the biennium.

Prior to the fall of 1957, the report on grain markets had been a heterogeneous one, in that it contained prices paid to producers only at some points and prices paid to dealers and handlers at others, without these bases being clearly identified. The lack of comparability in prices at the various points, along with the limited knowledge of producers in marketing on a grade basis, made it even more imperative that this service be revised in order to keep producers and tradespeople properly informed. As a result, the major buyers in eastern and piedmont North Carolina were contacted and their cooperation obtained in providing daily prices paid for grain on a grade basis delivered to elevators.

One other important change made during the biennium involved changing publication of the mimeographed market report on

poultry and eggs from a daily basis to a semi-weekly basis. This resulted in a postage savings of approximately \$7,000 annually and a large portion of this money, all of which was paid by the U. S. Department of Agriculture, was allotted to the market news service for telephone and travel costs in connection with poultry and eggs. This permitted an expanded coverage on both poultry and egg markets.

A new and popular service, started early in the biennium, was a comprehensive report on the Charlotte cotton market. Heretofore, North Carolina farmers had to rely on the average price reported for the nation's 14 leading markets based on middling 15/16-inch grade. As a result of cooperative efforts of Division personnel and representatives of the Cotton Branch, U. S. Department of Agriculture, daily price quotations are now being released for four grades and three staple lengths on the Charlotte market.

Additional efforts were made and assistance given to encourage radio and television stations throughout the state to increase the amount of market price information in their daily programs. More complete information is now being made available to them over the facilities of the two major wire services in the state. Prices on the following commodities were released during the biennium: Tobacco, cotton, peanuts, corn, wheat, oats, soybeans, milo, livestock, poultry and eggs.

In providing daily market price information as accurately and efficiently as possible, the market news service continued to maintain two permanent offices. Information for the eastern and piedmont counties was compiled and edited in Raleigh, and for the western counties in Asheville.

Special services on daily shipping point prices were made available to potato producers during harvest season through a temporary office located at Washington.

#### FOOD DISTRIBUTION

The North Carolina Department of Agriculture, under a cooperative agreement with the United States Department of Agriculture, acts as the distributing agency in North Carolina for all food commodities donated by the Federal Government. The Markets Division is designated as the agency to handle this ever-growing phase of the Department's services. Commodities are acquired by authority granted the United States Department of Agriculture under the following legislation:



1. SECTION 6 of the National School Lunch Act, which provides for the purchase of foods for schools participating in the National School Lunch Program.
2. SECTION 32 of the Act of August 24, 1935, as amended and related legislation. This Act provides for funds to be used in the surplus removal and price support program.
3. SECTION 416 of the Agricultural Act of 1949. This Act also provides funds for the surplus removal and price support programs.

Food purchased under Sections 32 and 416 are available to all nonprofit school lunch rooms as well as approved non-penal charitable institutions, summer camps for children, welfare agencies, and disaster relief organizations. Section 6 commodities are available only to schools participating in the National School Lunch Program.

The primary objectives of the Commodity Distribution Program are:

1. To aid in the United States Department of Agriculture's surplus removal and price support programs by providing outlets for agricultural commodities purchased.
2. To create a larger demand for these commodities by training school children to eat foods unfamiliar to them.
3. To provide a means of getting commodities to recipient agencies in order that they may furnish more adequate meals and thereby raise the health level of the people of this country.

During the 1956-58 biennium, all (174) city and county school units participated in the commodity distribution program. In addition to the public schools, the program benefited many private schools, child care centers, summer camps for children, and charitable institutions as well as the Camp Lejeune and Fort Bragg Schools. In the second year of the biennium, the number of school children participating climbed to well over 500,000, representing 1,900 schools. Benefits were also extended to approximately 25,000 persons in 138 institutions. Participants in the commodity distribution program, including summer camps, child care centers, and welfare, numbered considerably over 600,000 people during the biennium.

In the fiscal year 1957-58 the Department's program to make surplus foods available to needy persons in family units was extended to approximately 10,000 persons in five eastern coun-

ties. Food with a wholesale value in excess of \$120,000 was distributed to this outlet.

This program is one which directly benefits the majority of the people of this state, either through the utilization of available commodities or through the price support and surplus removal aspect.

Shipments of commodities during the biennium amounted to 1,136 carloads, or 41,061,540 pounds. The greater part of these foods was distributed to schools, with other eligible outlets accounting for lesser amounts. The wholesale value of foods distributed to all recipients was in excess of \$12,500,000.

Below are tables showing the kinds and quantities of commodities received during each year of the biennium:

## SECTION 6 COMMODITIES

<i>Commodity</i>	<i>1956-57 Pounds</i>	<i>1957-58 Pounds</i>
Beans, Canned Green .....	796,784	458,584
Cherries, Canned .....	—	437,720
Corn, Canned .....	264,360	—
Grapefruit Sections .....	693,825	—
Hamburger, Frozen .....	—	864,150
Orange Juice, Conc. ....	344,504	—
Peaches, Canned .....	893,160	1,230,533
Peanut Butter .....	283,865	—
Peas, Canned Green .....	—	521,960
Plums, Canned .....	354,510	—
Tomatoes, Canned .....	1,102,292	845,690
Tomato Paste .....	234,324	—
<b>TOTALS</b> .....	<b>4,967,624</b>	<b>4,358,637</b>



SECTION 32 AND 416 COMMODITIES RECEIVED AND DISTRIBUTED  
FISCAL YEARS 1956-57 AND 1957-58

COMMODITY	SCHOOLS		STATE INSTITUTIONS		OTHER INSTITUTIONS		SUMMER CAMPS		WELFARE		TOTAL	
	1956-57	1957-58	1956-57	1957-58	1956-57	1957-58	1956-57	1957-58	1956-57	1957-58	1956-57	1957-58
POUNDS												
Beans, Dry.....	1,159,680	1,438,865	64,320	—	46,400	—	—	300	—	—	1,270,400	1,439,165
Butter, Creamery.....	1,961,312	2,057,632	84,160	260,512	28,128	125,148	—	25,152	10,592	—	2,073,600	2,479,036
Cheese, Process.....	1,280,250	1,372,410	153,180	167,580	55,770	78,285	10,500	16,155	75,570	—	1,499,700	1,710,000
Corn Meal.....	908,350	753,950	242,550	195,400	81,450	93,500	10,000	13,400	144,445	—	1,242,350	1,200,695
Eggs, Dried.....	—	202,428	—	—	—	—	—	—	—	—	—	202,428
Eggs, Shell.....	1,592,397	—	41,733	—	32,715	—	—	—	—	—	1,666,845	—
Flour.....	1,897,350	2,221,600	609,250	707,500	180,700	174,180	25,950	25,260	233,580	—	2,713,250	3,362,120
Grapefruit Sections.....	—	297,150	—	—	—	—	—	—	—	—	—	297,150
Hamburger, Frozen.....	3,057,969	—	—	—	—	—	—	—	—	—	3,057,969	—
Hams, Canned.....	143,984	—	—	—	—	—	—	—	—	—	143,984	—
Lard.....	593,044	—	51,640	—	17,316	—	—	—	—	—	662,000	—
Luncheon Meat, Canned.....	440,046	—	—	—	—	—	—	—	—	—	440,046	—
Milk, Nonfat Dry.....	709,074	468,210	198,816	176,168	47,520	78,685	—	15,399	65,880	—	955,410	804,342
Peanut Butter.....	—	214,934	—	—	—	—	—	—	—	—	214,934	—
Plums, Fresh.....	—	—	27,720	—	—	—	—	—	—	—	27,720	—
Pork & Gravy, Canned.....	1,356,765	—	—	—	—	—	—	—	—	—	1,356,765	—
Rice.....	640,900	873,350	78,000	65,300	41,100	28,250	—	12,250	88,550	—	760,000	1,067,700
Turkeys, Frozen.....	1,024,410	—	45,294	—	17,966	—	—	—	—	—	1,087,670	—
TOTALS.....	16,765,531	9,900,529	1,596,663	1,572,460	549,065	578,048	46,450	107,916	618,617	—	18,957,709	12,777,570

## MUSEUM DIVISION

HARRY T. DAVIS

*Director*

For the State Museum, the 1954-56 biennium was characterized by the detailed work of getting settled in new quarters—unpacking from storage and arranging presentable exhibits in proper sequence. This 1956-1958 biennium has been a period of improvement of exhibits as our resources would allow.

With increased interest in the sciences, the public has requested and received much more service from our very limited staff. The result is that we have served better; but the exhibits program will not be up to a high standard until we can restore exhibits that were dismantled and build new exhibits to present the flora, fauna and natural resources of North Carolina. The obvious remedy for this difficulty is a modest addition to our technical staff. This has been included in budget requests.

### ACCESSIONS

These are the foundations of Museum exhibits. Some of them come from interested citizens who wish to make a contribution, or who want identification and explanation of an object's significance. Other needs are met by purchase or field collecting by the staff.

Each accession is recorded as a unit, though it may include as many as 100 specimens in a lot. Following is a listing of the number of accessions for the biennium, with notes on some of the important items:

*Rocks and Minerals, 60.* Notable is a production panel donated by the Lithium Corporation of America, Bessemer City, North Carolina. Individual minerals were presented by President Fred Allen and other members of the Southern Appalachian Mineral Society. The newly discovered phosphate mineral deposit, deep under Beaufort County, is shown as a sample.

*Fossils, 21.* Of most interest in these are a series of horse teeth, some a million years old, that were taken from the banks of lower Neuse River and presented by George Baxter of New Bern, North Carolina.



*Plant Life, 12.* Added to our tree collection was a cross-section of a sassafras tree presented by Mrs. Carl Lee of Four Oaks. The annual rings show large size and very fast growth as compared to normal specimens.

*Invertebrate Animals, 52.* Of these 37 belong to the insect group and 15 belong to the marine forms. Of the latter Clarke Gaskill, of Morehead City, made valuable contributions to sea shell exhibits.

*Fishes, 16.* We need to secure some of the large groupers and snappers now being taken off our coast.

*Amphibians and Reptiles, 179.* The severe cold weather of early 1958 depleted our popular exhibits of live poisonous snakes. Bill Palmer and George Tregembo, Tote-Em-In-Zoo, Wilmington have been helpful in making the necessary replacements.

*Birds, 71.* New for the Museum were eggs and a nest of the Florida Gallinule, from Lake Ellis, contributed by Matt Thompson of Chapel Hill. John Gatling brought in a Yellow Rail from Raleigh, and the U. S. Fish and Wildlife Service donated a Hutchins Goose from Lake Mattamuskeet. Through Mrs. Doris C. Hauser of Fayetteville, the Museum received a Spotted Towhee which is a new bird for North Carolina. Mr. James L. Stevens, of Lumberton, secured for the Museum the heads and necks of two Sandhill Cranes. These are the first tangible records of the occurrence of this bird in North Carolina. Unfortunately the birds had been plucked and the opportunity to mount them for exhibit was lost.

Hundreds of migrating birds are killed at night under certain weather conditions at the T. V. towers near Raleigh. Although this slaughter is deplored, through the efforts of William Craven and others the Museum has greatly augmented the research collection of bird skins.

*Mammals, 43.* Some of the smaller species were mounted to fill in the gaps in our exhibits series while others were made into scientific study skins.

*Indian Artifacts, 27.* These prehistoric articles supplement the exhibits on the American Indian.

*Agriculture, 12.* Mrs. J. R. Rogers, of Raleigh, gave to the Museum an excellent side saddle and pair of "spectacles" of the 1800's. M. A. York, Raleigh, presented a set of old balances,

used by "the country Doctor". Specimens of primitive tobacco were added for the collection that is kept current on grades, statistics, etc.

*Library, 68.* These volumes come from gifts and exchanges, except for minor purchases. Scores of useful pamphlets have come as exchanges.

*Miscellaneous Accessions.* This includes the crayon holder used by John James Audubon while drawing pictures of birds in the Carolinas. This was presented by Mrs. Nancy P. Leak of Rockingham. Film strips were purchased for visual aid loans. Rev. Scott Turner, Buies Creek, donated a series of 33 kodachromes of sea shells. The N. C. Academy of Sciences presented a series of 30 kodachromes on Science Fairs.

Eleven modern cases were purchased for mineral, rock and fossil exhibits.

### EXHIBITS

The major effort has been to improve and add to exhibits that are already placed.

In March, 1957, a special exhibit on atomic energy was shown for 10 days. This came from the Museum of Atomic Energy, Oak Ridge, Tennessee.

Another special exhibit is the five panels showing the original 20 pieces of art work used for the covers of the magazine "Wild-life in North Carolina".

Science Fair Exhibits have been shown as follows:

"Osteology", Charles P. Edgerton, Durham, N. C.

"Evolution", John R. Sherrill, Acme, N. C.

"Water Pollution", Clarence Styron, Jr., Morehead City, N. C.

"Atoms", John Crow, Jr., North Wilkesboro, N. C.

"Moth Life Histories", Betty Lou Wallace, Mountain Park, N. C.

"North Carolina Snakes", Susan Powell, Apex, N. C.

The major exhibit addition of the biennium was the shaping and refinishing of sections of large trees that were collected by Messrs. Gifford Pinchot and W. W. Ashe during the 1890's. These are prized because trees of this size are not likely ever to be available again. The collectors were associated with the organ-



ization of the first forestry school in this country, at Biltmore, N. C., in 1898. They later came to be nationally prominent in forestry and conservation. The original reason for assembling the collection was for exhibiting North Carolina resources at international expositions such as the Columbian at Chicago in 1893, Paris in 1900, and Saint Louis in 1904.

Special structures were built to carry the heavy sections. Cases are arranged to carry foliage, fruits, and special use items for each tree.

Another development to compliment the organization of the North Carolina Shell Club has been the extensive second floor exhibit of mollusks. To the layman this largely means sea shells. There are also land forms and models of the animals that make these shells.

#### ATTENDANCE

It is proper to say that the educational value of a museum can be measured by the interest of visitors, the character and extent of the exhibits, the time the visitors spend viewing and studying the exhibits, and the total number of visitors for any given period.

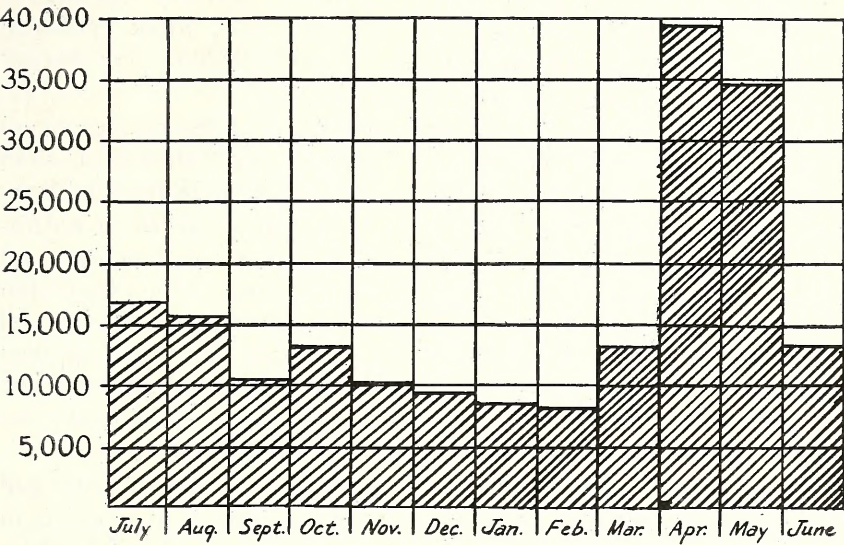
The natural history and natural resources of North Carolina are subjects that grip the interest of our citizens because they constitute the world we live in. The 24,000 square feet of exhibit space is of "State Museum" proportions. North Carolina is so situated as to be rich in plant life, animal life and other resources.

By six month periods the counted attendance was as follows :

July-Dec., 1956	Jan.--June, 1957	July-Dec., 1957	Jan.-June, 1958
76,269	116,822	75,821	117,737

This is a total of 193,091 for the first year of the biennium and 193,558 for the second year, making a total for the two years of 386,649.

Monthly attendance figures are shown below for July, 1957, to July, 1958:



This points to an obvious problem in that the normally ample floor space is crowded during the spring months of April and May. On April 25, 1958, we had the largest attendance, 6,015 in the eight hours. During April nearly 40,000 visitors came, mostly on the days Tuesday through Friday.

The daily attendance is augmented by groups, ranging from seven to 600 in numbers. The greatest number of groups are from our schools in the spring season, as shown below:

	College	High School	Elem. School	Church	Scouts	Misc.
July-December, 1956	11	48	78	17	20	17
January-June, 1957	18	607	457	28	58	11
July-December, 1957	12	52	63	22	22	8
January-June, 1958	21	537	408	27	61	8

The 1957 figures reflect the larger number of school groups that come while the Legislature is in regular session. The largest group was 600 4-H boys and girls during their meeting in Raleigh. Groups come from all parts of the state, as far as 350 miles. School groups were in from Bennettsville, S. C. and Halifax County, Virginia. We had the usual visiting overseas groups that were in this vicinity.

The attendance records show that there is a problem of congestion in certain months. The entire Museum staff has to drop



other work to handle the traffic and provide what guide service they can. The schools are faced with the problems of weather conditions, available transportation, and the place of the visit in their teaching program. Obviously, however, more could be gained from Museum visits if more groups could come during the months other than April and May.

In the odd years the Legislature is an added reason for school visits. The severe weather in February and March of 1958 caused an even greater concentration of visits in April and May.

One improvement now in operation is a printed leaflet outlining the exhibits to be found in the Museum. If teachers and others will mail a card or note in advance, saying when they plan a visit, how many and what grade and other interests, we will mail copies of this leaflet and other material. In this way they can correlate the three dimensional exhibits with the school work, and do this in advance as well as in a follow-up. The State Department of Education recommends this procedure.

This leaflet states that guide service is available if arranged for in advance. Such requests for guides have quadrupled in the past biennium. Since we have no provision for regular guides the duty falls on one of the three technical personnel here. On the other hand the exhibits are arranged and labeled so as to be understandable without a guide, and some of the groups prefer seeing them this way so that they can give their chosen time to different subjects.

### GIFTS

Continuing the policy of placing exhibit and other material where it will be of most value, gifts have been made as follows:

The bequests from Dr. Thomas M. Copple, Greensboro, and Miss Ruby Reid, Wake Forest, as noted in the 1952-54 Report, have been given to the Department of Archives and History.

The Old Lafayette carriage (1825) was turned over to the Department of Archives and History.

Fifteen thousand of our Information Circulars were given to the Morehead Planetarium in Chapel Hill.

Twenty volumes of the Elisha Mitchell Journal were given to the Library of Atlantic Christian College in Wilson.

Mounted animals and other objects were given to the Statesville Museum of Arts and Sciences, The Greensboro Junior Museum, and the Durham Children's Museum.

### LOANS

Mounted animals and skins were loaned to the State College Library, Duke University (for special teaching), and to the Wildlife Resources Commission (for T. V. and other educational purposes).

Thirty preserved snakes were loaned for biology work at the Needham Broughton High School. Research loans were made to the Philadelphia Zoo and to the Zoology Department at State College. A moth exhibit was provided for a meeting of the American Entomological Society, and the scale model of the State Fair Arena was loaned for architectural exhibit in Europe.

Visual aids in the form of kodachrome lantern slides and film strips, relating to the Museum exhibits, have been actively used by 102 school and other groups, with an estimated 10,500 viewers.

### COOPERATIVE WORK

Through the Museum, individuals that are interested in mollusks (sea shells) were brought together and the Museum was host for the organization of the North Carolina Shell Club on March 9, 1947.

The Southern Appalachian Mineral Society met at the Museum on November 10, 1956. The Carolina Bird Club had its annual meeting here in May, 1957.

The Museum has been opened at night on two occasions for the trainee game protectors of the Wildlife Commission and one night for the YMW Club of Chatham County.

The Director has worked with the U. S. Fish and Wildlife Service on banding colonial nesting birds and on "Operation Recovery" of birds moving south in Autumn.

Research assistance has been given a number of state agencies.

### PUBLICATIONS

With the help of Dr. D. L. Wray the necessary revisions were made for the new volume "Birds of North Carolina". This was completed in November, 1957. An extended printer's strike has held up the finishing of this book for at least six months. This strike likewise has delayed the printing of a revised booklet on "The Poisonous Snakes of the Eastern United States".

Our series of 31 Information Circulars (multilith) has been added to, and some 340,000 have been distributed to schools and other groups during the biennium.



## PERSONNEL

Miss Mary Knight, the veteran secretary of the Department of Agriculture and this Division, was retired and Mrs. Julia L. Nowell became the Museum secretary in 1956.

On December 31, 1957, Mrs. Claire S. Johnson retired after 10 years as receptionist and was succeeded by Mrs. Sara D. Prince. On July 1, 1957, Owen Woods retired after 20½ years as janitor-messenger (general housekeeper) and was succeeded by Ernest Jones.

## BUDGET

The present budget of the Museum does not provide for exhibits that would do the most credit to the natural history and natural resources of this state. Also the large number of visitors, especially the school groups, should have better educational exhibits for their studies. The cost of Museum operations per visitor is now about 16 cents. This is quite low for museums of this class. The addition of 2½ cents per visitor would provide another trained worker and thus make possible better exhibits. This additional worker has been asked for in budget requests.

## PUBLICATIONS DIVISION

BLACKBURN W. JOHNSON\*

*Editor*

While the Publications Division performs a variety of services, its work generally falls into the following major categories:

(1) The first responsibility of this Division is to keep the public informed of the activities of the North Carolina Department of Agriculture, and of the laws and regulations administered by the Department.

(2) The second category can be most simply expressed by saying that the Division acts as a clearing-house of information for the Department. This aspect of its work has a dual purpose in that it serves as an information center for the 17 divisions of the Department, as well as for the general public.

(3) This Division is responsible for the editing, lay-out and printing arrangements for all printed publications of the Department.

(4) The Publications Division provides secretarial service for the State Board of Agriculture.

In discharging its first responsibility, the Division prepares press releases for newspapers, wire services and radio stations on news-worthy developments in the Department, as well as special articles for farm papers and magazines. It also publishes a semi-monthly paper, *Agricultural Review*, which is an effective means of carrying departmental and other agricultural news directly to farmers and agricultural leaders in the state.

The 48 issues of the *Agricultural Review* published during the 1956-1958 biennium consisted of 40 four-page issues and eight eight-page issues, a total of 224 pages. Six of the eight-page issues were printed in the last year of the biennium, when an increase in the printing appropriation for this paper became effective. Traditionally, this paper alternated regularly between four-page and eight-page issues. But as printing costs increased, without comparable increase in appropriations, it had been necessary for the past four years to cut the number of eight-page issues to four or five per year. This seriously cur-

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\*The death of Blackburn W. Johnson occurred on July 3, 1958, following an illness of several months. This report has been prepared by the staff of the Publications Division.



tailed the valuable service which the *Review* is capable of rendering through its news columns and free advertising service for farmers. It is, therefore, most gratifying that current appropriations permit some expansion.

Funds available do not, however, permit expansion of the mailing list to any great extent. Names are added to the *Review* mailing list only on request and for some years the number of subscribers has averaged between 72,000 and 73,000. At least 100,000 to 150,000 North Carolina farmers should be receiving this paper. This could be achieved by only a little effort to bring the *Review* to the attention of those younger farmers or newcomers who do not know about it. But we have not been, and are not now, in a position to put on any kind of drive to increase circulation because current appropriations are not sufficient to take care of any sizeable increase in the mailing list.

In its second category of activities, the Division performs non-recurring services too numerous to list individually. Of a continuing nature, however, is the handling of thousands of requests for information which come to the Department by letter, telephone and personal visits. A part of this aspect of the work is conducting tours or "classes" for groups who visit the Department to learn about its organization and functions. During this biennium, visiting groups have included college classes, farmers, vocational-agriculture students, and foreign agricultural officials. The foreign groups have ranged in number from one or two of a single nationality, to groups of 15 or 20 from as many different countries. Arranging programs and tours for these groups is often very time-consuming, but the results are rewarding to the Department as well as the visitors.

In its capacity as a clearing house, the Division is also called upon to prepare or correlate various special reports dealing with some or all phases of the Department's work. Some of these are requested by federal or other North Carolina agencies, and some by non-government groups or individuals both within and without the state. An example of the latter are several which the Division prepared during this biennium for presentation to congressional delegations or congressional committee hearings. Others were prepared for agricultural departments of other states or associations of state departments of agriculture.

Publications handled in this Division include four annual

issues of *The Bulletin*—a series of reports on the results of inspection and analytical work in administering the feed, fertilizer and insecticide laws; and one market bulletin dealing with tobacco. The eight issues of *The Bulletin* printed during this biennium totaled 885 pages.

Secretarial service to the Board of Agriculture involves more than the keeping of minutes. It also includes the advertising and recording of public hearings; and the writing, codification, printing and filing of regulations and amendments as required by law. The Division maintains a master set of all regulations, and is responsible for revising and reprinting the various chapters from time to time. A correlary responsibility is the printing of laws administered by the Department, after checking them with the statute books to embody amendments enacted from time to time by the General Assembly.

During the 1956-1958 biennium, printed amendments and revised chapters of the Department's regulations totaled 123 pages; and four laws, totaling 30 pages, were reprinted.



## DIVISION OF RESEARCH STATIONS

CECIL D. THOMAS

*Director*

This Division is responsible for the operation of sixteen research stations located in various types of farming areas of the state on which field experiments and tests are conducted by the Experiment Station staff of N. C. State College. These stations provide very important field facilities for the experimental program to go along with laboratory and greenhouse phases of the research at State College. Nine of the stations are budgeted by the Department of Agriculture and seven by the Experiment Station. Because of the arrangement regarding stations, this report will deal only with those in the Department of Agriculture.

Supervision of the stations involves all aspects of farm business management and the management of experimental field plots and other research projects as well. Budget management and personnel management also play a vital role in the operation of research stations. Construction of buildings and other facilities and the maintenance of these facilities require technical assistance and entail much planning and attention. Also the selection and maintenance of machinery and equipment for conducting the program in a mechanized age are of great importance and are given much attention by the Research Stations office and by the superintendents. Numerous other phases of the operational program including land management, soil treatments, weed control, and the coordination of all supporting elements for the research program are included in the functions of this Division.

A number of departments and agencies participate in the program on the research stations. The United States Department of Agriculture takes part largely through the Experiment Station at State College in the form of research personnel, supplies, materials, and equipment of a technical nature. There are several stations, however, where USDA participation is direct. This is the case at the Oxford Tobacco Research Station on tobacco; the Coastal Plain Research Station on the dairy program; the Border Belt Tobacco Research Station on striga (witchweed) research; and the Mountain and Upper Mountain Research Stations on Burley tobacco. The Tennessee Valley Authority cooperates in certain projects such as special ground water studies at the

Mountain Research Station. Many other agencies cooperate in the program in varying degrees both directly and indirectly.

As an integral part of the research program for North Carolina, the outlying stations are playing a vital role. Field experiments coordinated with laboratory research have resulted in many new developments. Among the outstanding developments are new crop varieties including tobaccos with disease resistance, improved corn hybrids, higher yielding small grains, and better varieties of other field crops, fruits, and vegetable crops. Plant breeders are continuing their efforts to obtain better varieties and receiving unusual attention now are tobaccos having multiple disease resistance, crops having resistance to nematodes, and varieties of forage plants better adapted to the southeast. Improved lines of hogs, chickens, and sheep and more efficient producing dairy cattle and beef cattle are resulting from the research efforts. Outstanding progress is being made on tobacco harvesting equipment, bulk tobacco curing, peanut harvesters, and crops drying. Also there is notable progress in weed control, nematode control, and insect and disease control work.

#### BORDER BELT TOBACCO RESEARCH STATION— WHITEVILLE, NORTH CAROLINA

WALLACE J. DICKENS, *Superintendent*

Prior to 1957 the Border Belt Tobacco Research Station was operated on leased land. As time advanced, however, it became apparent that a permanent station was greatly needed in the Border Belt area. In 1954 it was decided by the Department of Agriculture and the North Carolina Agricultural Experiment Station that steps should be taken to fill this need. Funds were appropriated by the 1955 General Assembly for purchasing suitable land and very soon thereafter a committee was appointed by the Commissioner of Agriculture to select a new site. After an investigation of many possibilities, the committee recommended the purchase of a 103-acre farm in Columbus County. This farm was acquired during the year 1956 and possession of the property was obtained on January 1, 1957.

The station is located  $7\frac{1}{2}$  miles northwest of Whiteville near Evergreen. Elevation of the station is 95 feet above sea level. Average temperature during 1957 was 62 degrees and total rainfall for the year was 43.5 inches. Soil types are largely Norfolk, Ruston, Goldsboro, and Marlboro fine sandy loams with small



areas of Dunbar, Duplin, Lynchburg, and others. There are other minor soil types in small areas giving a total of 17 different soils on the farm.

During the first six months of 1957, a foreman's dwelling was constructed and a well was drilled to provide water for the station. On July 1, 1957, funds were available for a continuation of the building program and very shortly thereafter, a plastic greenhouse with a masonry block headhouse was constructed for use in connection with Striga (witchweed) research. Following this, a masonry-block office and utility building was erected and was in use on February 15, 1958. In rapid succession a tobacco packhouse with ordering and grading rooms was built and a five-compartment tobacco curing barn was erected. In addition to the new structures, one standard tobacco curing barn was moved from a field to the planned building area. Also, an old tobacco packhouse was moved to the new building area for use as a general storage facility.

Considerable land development and improvement were accomplished, including cleaning up and pushing back field boundaries with a bulldozer; the clearing of three acres of land for building sites; and the reshaping and laying out of the fields and roads.

About 2,500 feet of old ditches were filled and 3,000 feet of drain tile were installed. Also, a pond was dug to supply water for tobacco plant beds.

Research on the station naturally deals primarily with tobacco. There are about 50 acres of usable plot land and this acreage is sufficient for a satisfactory rotation of experimental plots. Research deals with all aspects of tobacco production including the testing of disease resistant varieties for yield and quality, brown spot and mosaic studies, official variety tests, studies of fertilizer and arsenic absorption, breeding work, and tobacco insect and disease control studies.

An allied program of research with the Striga weed problem is headquartered at the station and some of the research is conducted in the greenhouse. United States Department of Agriculture personnel are conducting this project and seven acres of land are rented from a farmer in the area for experimental plots.

At present the farm foreman is the only worker living on the station. All of the work is done by the foreman supplemented by temporary help during the planting and harvesting seasons.

Facilities needed for further development of the station include a laborer's dwelling and a machinery storage building with

a shop and storage space for fertilizer and insecticides. Also there is a need for an additional pond or for wells to provide water for irrigation.

## MOUNTAIN RESEARCH STATION WAYNESVILLE, NORTH CAROLINA

M. R. WHISENHUNT, *Superintendent*

The Mountain Research Station, established in 1944, is located two miles southeast of Waynesville in Haywood County. This station consists of 354 acres of land with principal soil types as follows: Hiwassee, Halewood, Hayesville, Clifton, and Masada clay loams. Annual rainfall averages 45 inches, and the average elevation is 2,800 feet above sea level. Total land area in the station is used as follows: 132 acres are in permanent pasture; there are 98 acres of cropland; and 80 acres are in woodland. A total of 45 acres is devoted to field plots and other research projects.

There are nine dwellings on the station. Other facilities include dairy buildings, tobacco barns, granary, implement shed, poultry buildings, and an office. Farm machinery includes trucks, tractors, ensilage and forage harvester, orchard sprayers, spreaders, rake, cultivators, and planters.

Research is being conducted at this station by the following departments of the Experiment Station: Agronomy, Animal Industry, Horticulture, Poultry, and also by the Tennessee Valley Authority. Specific lines of work are being carried out in agronomy research with forage and pasture crops, small grain, corn, and a joint watershed hydraulic data project with T. V. A. Research with Burley tobacco includes plant bed studies, field management tests, and variety evaluations. Dairy research involves breeding, calf-raising, heifer-grazing, irrigation, alfalfa grazing, and feeding trials with dairy cows. Research work with poultry is centered around broiler and hatching egg production. Breeding, feeding, and management investigations are included. The apple orchard which was started in 1953 is being used for variety testing and fertilization experiments. Additional trees including several new varieties have been added in the past few years. All land and facilities not being used directly for experimental work are used for producing feed for the dairy and poultry departments.

During this past biennium a 140-ton concrete stave silo was constructed. A heating system was installed in the office



building, and the laboratory in this building was repaired and additional facilities were added. Other improvements include: Additional tile drainage of bottom land, new varieties planted in the apple orchard, thinning and pruning of white pine plantings, pasture improvement, several buildings repaired and painted, and the purchase of some new farm equipment.

The future needs for this station include a hay storage and feeding barn for dry cows and heifers, a tobacco barn, apple grading and storage facilities, drainage work, grain storage facilities, repairs and alterations to dwellings and farm buildings, and various additional items of farm equipment.

### OXFORD TOBACCO RESEARCH STATION OXFORD, NORTH CAROLINA

J. M. CARR, *Superintendent*

The Oxford Tobacco Research Station is located one mile west of Oxford, the county seat of Granville County. It was established in 1912 on an original tract of 250 acres which was enlarged to 330 acres by the purchase of 80 additional acres in 1941. The elevation is approximately 500 feet above sea level, and the principal soils are of the Durham, Colfax and Enon series. About 100 acres are under cultivation using a rotation of small grains and tobacco, and the remaining open land is in permanent pasture used for beef cattle. Rainfall over the 37 year period July 1, 1921 to July 1, 1958 has averaged 44.27 inches annually.

A permanent force of seven laborers and one foreman is kept throughout the year. Seasonal laborers are hired from nearby Oxford and from families of men living on the farm.

As the name of the station indicates, the research program is limited to tobacco with the exception of one acre devoted to tomato breeding work and four acres in lespedeza *Sericea* for beef cattle grazing tests. The total program involves the production of approximately 45 acres of tobacco annually under the direction of project leaders in Agronomy, Botany, Entomology, Engineering and Pathology.

The agronomy program includes projects on nutrition, varieties, rotation, irrigation and the influence of stages of ripeness at harvest on the composition and quality of the cured leaf.

Project leaders in botany are studying the effectiveness of sucker control measures and the influence of these practices on yield and quality.

Entomologists are concerned with the biological control of tobacco insects, the effectiveness of insecticides and the influence of insecticidal residues on the flavor of the leaf.

The engineering program is devoted largely to the development of new methods of curing and fundamental studies of the changes that take place in the leaf during the curing process.

Tobacco diseases constitute one of the most serious problems of production in North Carolina. For this reason the pathology program is necessarily the most extensive on the station. Much of the pathology program is concerned with the development of acceptable varieties resistant to blackshank, bacterial wilt, fusarium wilt, root knot and mosaic. About 3,500 square feet of greenhouse space and 10 acres of field plots are used in this phase of the pathology program. Several acres of field plots are used for the study of crop rotation and soil fumigation as a means of controlling the various nematodes that attack tobacco. A two-acre nematode infested area in Durham County, used as a testing ground in the development of nematode resistant varieties, is operated by this station.

No major improvements were made to existing facilities during the biennium 1956-58. However metal roofs were put on six buildings. All other repairs were limited to normal wear and tear items.

Research facilities added in the 1956-58 biennium included the addition of sixteen 4' x 4' x 9' compartments to an existing barn, and the construction of an additional compartment barn containing six 9' x 9' units. These barns were badly needed and are fully appreciated by the project leaders. Two new seed bed areas were developed on locations that can be reached with irrigation equipment. Formerly all seed beds were watered by hand from city water lines.

Increasing interest in irrigation as it influences tobacco production and disease behavior creates the need for additional irrigation facilities. Installation of approximately 2,000 feet of six-inch underground main would make it possible to reach most of the fields on the Station with relatively low labor costs.

## PEANUT BELT RESEARCH STATION LEWISTON, NORTH CAROLINA

CLYDE Z. MCSWAIN, JR., *Superintendent*

The Peanut Belt Research Station, established in 1952, is located along the northern side of the town of Lewiston in Bertie



County. The office and main buildings are  $\frac{3}{4}$  of a mile out of Lewiston on the Connaritsa highway. Elevation is 50 feet above sea level and the average annual rainfall, since 1952, has been 48.5 inches. Temperature extremes for the same period ranged from a high of  $102^{\circ}$  to a low of  $8^{\circ}$ . Soil types typical of the peanut belt of North Carolina are found on the station. They are Norfolk, Goldsboro, Faison, Duplin and Dunbar.

The station consists of 366 acres. In 1952 there were approximately 80 cleared acres with about 70 acres in cultivation. Since that time cultivated land has increased to a total of 160 acres. An additional 27 acres is used for building sites, roadways and grassed waterways. With assistance from the Soil Conservation Service, a drainage plan was developed for the station. The plan calls for both open ditches and tile lines. Already, some 11,000 feet of open ditches and 12,000 feet of tile have been installed. An additional 6,000 feet of tile will be installed after removal of the 1958 crops.

During the biennium a much needed peanut drying building was constructed. The structure includes a shed for wagon drying with six drying bays, each one accommodating a five-ton wagon. There is also a work room and a peanut storage area of 1,800 square feet. This drying facility fills a long felt need and will be invaluable to the research program in permitting the harvesting and processing of experimental plots ahead of bad weather in the fall which normally results in great losses. Other buildings on the station are the office and laboratory building, superintendent's residence, four laborers' dwellings, shop and machinery storage building and a platform hay drier. Buildings on the farm when purchased include an old dwelling (used for storage at present), a general barn and a tobacco barn.

Land use varies from year to year to meet the demands of the research program. Test plots totaled 79.2 acres for the 1958 crop year. Peanut research accounted for 63 acres while the remainder was used for cotton, corn and sweet potato research. The Experiment Station departments involved in research on this station are as follows: Field Crops, Soils, Plant Pathology, Entomology, Horticulture, Agricultural Engineering and Agricultural Economics.

All of the farming operations on the station are done by tractor power. The major items of equipment are two trucks, four tractors, peanut picker, hay baler, and the planting and cultivating equipment necessary for the station program. In addition, a TD-14 crawler tractor with a dozer blade, grubber blade and a

heavy bush and bog, all station owned, are used in the land clearing operation.

Over two thousand visitors were on the station during the biennium. The scheduled field meetings were attended by growers from the peanut producing areas of North Carolina and Virginia. Many individuals and small groups visited the station from time to time.

Major needs for the future include peanut combines and associated equipment. It is essential that two peanut combines be provided so that at least two groups of research specialists can harvest their valuable experimental plots at the same time during the fall months in order to take advantage of favorable weather. These combines are an essential tool for the research program. In addition, a dwelling should be provided for the foreman, and a fertilizer and pesticide storage building is needed. Funds are needed for additional drainage and for the replacement of items of equipment in addition to the combine.

#### TIDEWATER RESEARCH STATION PLYMOUTH, NORTH CAROLINA

J. L. REA, SR., *Superintendent*

The Tidewater Research Station was established on October 1, 1943, in Washington County five miles east of Plymouth on U. S. Highway 64. The station consists of 495 acres of land, of which 235 acres are crop land, 185 acres are in pasture, 35 acres are partly cleared land, and 40 acres remain in woods. In addition to the station farm, a tract of undrained woodland lying adjacent to the station, comprising an area of 1,064 acres, is being held for future development. The station is 15 feet above sea level and the average rainfall is 55 inches. Predominant soil types are Portsmouth fine sandy loam, Bladen fine sandy loam, Bladen silt loam, and Bayboro loam.

During the biennium two pig parlors were built, and one farrowing house was constructed. General maintenance of the station property was accomplished so far as funds and labor would permit. Sixteen acres of land were cleared and initial clearing was done on an additional 50 acres. The tract of 50 acres was ditched and the necessary culverts for all crossings with retainer walls were installed. An additional 1,750 feet of farm drain tile will be installed in the fall of 1958.

The following new equipment was added during the biennium: A tractor, a two-row planter, a large hydraulic tandem disk



harrow, a potato grader, an ensilage field chopper and blower and one grass head attachment.

The research program is set up to meet the needs of the black-land area of tidewater North Carolina. Practically all enterprises common to this area are being studied and there are research projects on the station pertaining to many of them.

The agronomy program includes: (1) soybean varieties for yields, adaptability and disease resistance, (2) corn hybrids for adaptability, resistance, stalk strength and yields, (3) weed control with corn, soybeans and cotton, (4) soil fertility work with forage crops, (5) soil fertility studies with corn and soybeans, (6) small grain varieties of oats, wheat, and barley for winter hardiness, disease resistance and yields and (7) inoculation studies.

Horticultural research deals with the following projects: (1) Irish potato varieties, (2) treatment of Irish potato seed pieces and scab studies with potatoes, (3) effect of deep placement of lime on production of potatoes and cabbage, (4) muscadine grape cultural studies, (5) production of sweet potatoes resistant to disease. The Irish potato program is moving along more smoothly since the new potato grader was put in operation. A washer is, however, still badly needed to handle the potato work in an entirely satisfactory manner.

The research program of the Animal Husbandry department is with hogs, beef cattle, and sheep. The project with hogs consists of (1) cost of producing hogs in pig parlors versus pasture lot feeding, (2) the development of a better meat type hog, and (3) the evaluation of protein supplements.

Beef cattle work includes (1) determination, by weighing and grading of calves of a given sire, his ability to sire fast gaining calves, (2) wintering of beef herd and weaning calves on different feeds.

The sheep program has recently been changed to include a study of early dropped lambs versus late lambs. Ewes are divided into two groups, one group being bred in July and August and the other in October and November. The objective of this study is to determine the factors that have a bearing on the economical production of late lamb crops.

A problem that has been of growing importance with beef and cattle producers is the lack of economical gains in the hot summer months. This matter will probably be studied in the near future if present plans materialize. The problem is of utmost importance in the eastern part of the state as this section is fast be-

coming livestock minded. A great number of cattle are being grazed and fed out and, in all probability, the number will increase as more and more land is taken out of cotton, tobacco and peanuts and put in corn, small grain and forage.

## PIEDMONT RESEARCH STATION SALISBURY, NORTH CAROLINA

J. W. HENDRICKS, *Superintendent*

In 1953 a tract of land in Rowan County was purchased for the purpose of relocating the Piedmont Research Station which was established in Iredell County in 1903. Initially, a block of land consisting of 1,061 acres was purchased. Since that time, however, two small tracts that were not readily accessible to the main area were sold. Total acreage of the station is now 1,034. The station is 800 feet above sea level. Average temperature during 1957 was 60 degrees and rainfall during that year was 50.9 inches. Soil types are typical of the piedmont area and include Davidson, Iredell, Mecklenburg, Cecil clay, and some Altavista. In addition there are some alluvial soils along the streams.

Much progress was made during the biennium in getting the research program underway and in the construction of buildings, land clearing, drainage, fencing, and the construction of roadways and waterways. Twelve new buildings were completed during the biennium and seven additional buildings are under construction and will be completed during the fall of 1958. Buildings completed include four workers dwellings, an office and utility building, an implement shed, a general storage building, and dairy buildings. Dairy buildings consist of a milking parlor, a lounging shed, hay storage building, experimental barn, and a calf barn. In addition to these structures a bunker silo was built and three trench silos were constructed. One trench silo is for the dairy and two for beef cattle work.

Other than the buildings erected, many other improvements were made including the drilling of two additional wells, the clearing of additional land, and land improvement in general. Approximately 9,000 linear feet of ditches were opened by the use of a dragline for improving drainage of bottom land. Additional farm roads were built bringing the total of roads on the



station to six miles. Also, six miles of new fences were erected making a total of twelve miles of fences now on the station.

Buildings now under construction and which will be completed in the near future include two dwellings—one for the poultry research supervisor and one for the herdsman. Also poultry buildings, consisting of a main poultry building and three all-purpose houses, are included in the present program. Poultry buildings are to be used for the Random Sample Testing Project. In addition a beef cattle barn is being built.

The first experimental plots were put on the new station in the fall of 1954, and since that time many other phases of the total research program have been initiated. Forty-seven beef animals were purchased during the fall of 1957 for use in grazing trials which were conducted during 1958. Forty-five Holstein cows and heifers were moved to the station in April, 1958, as the beginning of the dairy research program.

In addition to research with beef cattle and dairy cattle, much work is under way in research with crops. This includes investigations with corn, cotton, small grains, soybeans, and with forage crops including alfalfa, grasses, lespedeza, and an accelerated program with various other forage plants. Also work is being done with castor beans and with other new crops to determine whether or not they are adapted to the area.

There have been a number of personnel changes at the station during the biennium including the addition to the staff of a dairy research supervisor, a dairyman and a herdsman for beef cattle. In addition to these, two more full time laborers were employed bringing the total station personnel to twelve.

As time passes, there are more and more visitors to the station to observe the research program and to study the results which are being obtained. There have been several organized field meetings with a good attendance and with a great deal of interest in evidence. It is apparent that this station will be of great interest and value to the farmers and professional agricultural workers in Piedmont North Carolina.

Major needs for further development of the station include a dry cow barn, an extension of the beef barn, two additional all-purpose poultry houses, additional dwellings, and miscellaneous structures. Over and above these, there is need for funds to provide for drainage of certain areas and to provide for the clearing of additional land.

## UPPER COASTAL PLAIN RESEARCH STATION ROCKY MOUNT, NORTH CAROLINA

WARREN H. BAILEY, *Superintendent*

Established in 1902, the Upper Coastal Plain Research Station is located in Edgecombe County, approximately six miles southeast of Rocky Mount on the Noble's Mill Pond Road. It has an elevation of 100 feet above sea level, and the average annual rainfall is approximately 45 inches. Some 16 different soil types are found on the station, the principal ones being Norfolk, Marlboro, Duplin, Dunbar, Coxville, and Craven.

There is a total of 441.9 acres in the station; and of these, 227.3 acres are classed as cropland, 53.4 acres are in improved pasture, 105.5 acres are in woodland, 55.7 acres are in roads, lanes, meadow strips, ponds, etc. In 1957, research plots occupied 111.7 acres of the 227.3 acres of cropland. The remaining cropland was used for field demonstrations and for producing feed for the swine and cattle programs.

Buildings on the station include a crop drier, two compartment-type tobacco barns, a packhouse, three steel grain bins, two implement sheds, a shop, a feed barn, a laboratory, an office, and 10 dwellings. The major items of equipment owned by the station are five tractors, with cultivators and other tillage tools, corn husker and sheller, peanut picker, hay baler, grain drill, three wagons, a high-clearance sprayer, two tractor dusters, and two irrigation pumps. Transportation is furnished by two pick-up trucks and one 1½ ton truck. The labor force consists of five permanent and three temporary laborers, all living on the station. Additional labor, when needed, is obtained from the laborers' families and from the surrounding community.

General repairs and maintenance on a number of the station's structures during the biennium included considerable interior and exterior painting. One of the implement sheds was enclosed with corrugated galvanized metal, using station personnel to do the job. In the spring of 1958, a masonry block laborer's dwelling was built to replace an old frame dwelling. Here, again, some of the station personnel was used to good advantage in erecting this building.

For several years, the station has been following soil conservation practices recommended in a long range plan developed from a complete farm survey, made in 1954, by the Soil Conservation Service. Among the many improvements resulting from this survey are: Several fields were reshaped to better serve the re-



search program; meadow strips were built, seeded and maintained; areas not suited to row crops were seeded to pasture or hay crops; and drain tile was installed in some of the poorly drained areas of the farm. All of these improvements are aimed at conserving the soil of the station and making it better suited to the research program. The results already obtained have proved their worth many times over.

During the biennium, irrigation facilities were further expanded. To the already existing 2,900 feet of underground main, 702 feet were added in the spring of 1958. Also added to the system were 1,940 feet of portable aluminum lateral and main pipe. These additions have made it possible to reach most parts of the station with irrigation, which has become an indispensable tool in the research program. Most of the water for irrigation is obtained from a 50-acre lake located on the northwest side of the station. For a small amount of irrigation, water is taken from a four-acre pond on the south side of the farm.

The research program consists of numerous crops experiments and livestock studies. The field crops program includes studies dealing with plant breeding, variety and advanced strain testing, involving cotton, corn, soybeans, peanuts, tobacco, castor beans, sesame, and grain sorghum. There are also experiments dealing with weed control on corn, soybeans, peanuts, and cotton. The Soils Department is conducting research dealing with fertilization, crop rotation, subsoiling, and residual effects of crop residue.

The Agricultural Engineering Department is interested in peanut harvesting and drying methods, as well as cultivation and weed control.

Plant pathology studies are directed toward disease control on tobacco, cotton, corn, peanuts, and soybeans. These problems are approached from several directions, including crop rotations, winter management practices, plant breeding, and chemical controls.

The Statistics Department is running extensive statistical experiments relating to plant breeding. The crops involved are corn and tobacco.

Entomology investigations deal with the residual effects of certain insecticides on the flavor of tobacco, and insect control on peanuts and other field crops.

The beef cattle and swine programs are supervised by the Department of Animal Industry. During the biennium a herd of 17 cows, known to be dwarf carriers, was assembled on the station. These cows are being used in a study to develop methods

of detecting animals that are dwarf carriers. The steer feeding program is designed to produce answers to feeding problems, such as the use of cheap roughages for over-wintering, and self-feeding grain on pasture. The swine project is directed toward breeding, feeding, and management studies.

During the past two years there have been visitors from all over North Carolina, the United States, and many foreign countries. Attendance was good at all of the regular field meetings, and there were numerous individuals and small groups coming to the station in search of answers to their farming problems. Many groups were brought in by Vocational Agriculture teachers, County Agents, Soil Conservationists, and other professional agricultural workers.

F.F.A. and 4-H Groups have used the swine and cattle herds to train livestock judging teams. Tobacco plants for demonstration plots are furnished to county agents requesting them. School groups are often brought in to observe, first hand, agricultural research being conducted in the field. Station personnel frequently give individual assistance to farmers requesting help in specific problems. The station is now, and has been for over half a century, a very important link in the development of the agricultural economy of Eastern North Carolina.

## UPPER MOUNTAIN RESEARCH STATION LAUREL SPRINGS, NORTH CAROLINA

DANA F. TUGMAN, *Superintendent*

The Upper Mountain Research Station is located in Ashe County, three miles west of Laurel Springs on Highway N. C. 88. The station consists of 420 acres, of which 117 are devoted to field plots and grazing research, 140 to permanent pasture, 85 in cropland and 78 in woodland. A seven-acre tract adjoining the station has been rented for the past two years for the production of Irish potato varieties and breeding lines. A 25-acre tract of woodland on the station is now being cleared.

The principal soil series found on the station are Watauga, Clifton and Tate loams. Elevation on the station ranges from 2,800 to 4,000 feet. The average annual rainfall in the area is 52 inches. The summers are mild, with extreme temperatures in the middle to high eighties. The growing season is relatively short. The winters are long and comparatively severe, with temperatures of zero and lower.



The research program includes projects with beef cattle, sheep, forage crops, corn, Burley tobacco, potatoes, tomatoes and apples.

Research projects with beef cattle include feeding, grazing and breeding studies. The feeding phase of the project consists of winter feeding trials in an effort to evaluate feeds which farmers in the area can produce efficiently, and to determine what combination of those feeds might be used most effectively in terms of adequate nutrition and economical beef production. During the summer months grazing studies are conducted to compare and evaluate rotational, light continuous, and heavy continuous grazing in terms of beef production and pasture management.

During this biennium, 15 acres of alfalfa were seeded for grazing research in an effort to determine the value of alfalfa in grazing rotations. The station herd is also included in the U.S. D.A. Regional Beef Breeding Program.

Research with sheep at this station is a breeding project in which the performance of three different breed groups, namely, Hampshire Crossbreds, Native crossbreds and western ewes, are evaluated for the production of slaughter lambs and wool. Cross breeding is obtained through the use of rams of different breeds. The objectives in the cross breeding program are to increase size of the animal, increase wool weight, and improve the milking ability. The above breed groups are subdivided into early and late lambing groups, in an effort to determine the most desirable lambing time for commercial lambs in terms of net returns from the lamb crop. Results to date indicate that western ewes are superior to the other groups mentioned in the production of lambs and wool, and that late lambing dates are preferable in the northern mountain area of the state.

The forage research program has received considerable emphasis during this biennium in an effort to strengthen the pasture and livestock feed production programs in the area. Forage crops projects now in progress include date of seeding, fertility studies, the effect of nurse crops and the effect of exposure. The evaluation of several strains of orchard grasses—fescue, alfalfa, birdsfoot trefoil and Ladino clover—is now in progress. One new variety of alfalfa, Du Puits, was added to the recommended list for the mountain area in 1958 following its evaluation in variety trials at this station. Birdsfoot trefoil, on the basis of its performance here, shows promise as a pasture legume in the northern mountain area.

Work with corn consists of the production of breeding lines and varieties for evaluation. Emphasis in the breeding program

is for a corn of desirable yield and quality that will mature in the comparatively short growing season of the northern mountain counties.

Research with Burley tobacco consists of tests involving fertilization and spacing, topping and suckering, date of transplanting, chemical sucker control, and the production of varieties and breeding lines. Emphasis in the breeding program is being placed on resistance to the more common Burley diseases.

Horticultural research consists of the production of Irish potato varieties and breeding lines for observation and evaluation; a breeding program with tomatoes in which the objective is to incorporate blight resistance with desirable fruiting qualities; and apple variety evaluation and orchard fertilization studies.

In addition to the research projects, the principal farming operations on the station consist of the production of feed for livestock involved in research. About 75 acres are devoted to the production of hay and silage for winter feeding.

Improvements during the past biennium consist of the construction of a 70-ton trench silo, construction of a machinery storage shed, relocation and improvement of farm roads, establishment of a rotation for all cropland, and the beginning of clearing work on a 25-acre tract of woodland.

The most urgent need in the program is for additional land suitable for plot work. All land on the station which lends itself to research purposes is now being fully utilized, and an additional seven acres is being rented. However, many investigations pertinent to the agricultural economy of the area cannot be pursued until additional land is acquired.

## COASTAL PLAIN RESEARCH STATION WILLARD, NORTH CAROLINA

JESSE W. SUMNER, *Superintendent*

The Coastal Plain Research Station, established in 1905, is located one mile north of Willard and two miles south of Wallace in Pender County. The elevation is 51 feet above sea level, and the average annual rainfall is 48.9 inches. Of the Station's 411 acres of predominantly Norfolk sandy loam soil, 149.8 acres are in pasture, which is used for dairy cows and for cooperative dairy forage research plots. There are 123.9 acres of crop land, of which 28.1 are used for field plots and other research, with the remainder devoted to general crops producing feed for poul-



try and for dairy cows. The station also has 81.5 acres of woodland; and 48.5 acres in roads, building sites, and an irrigation pond. Station activities include the supervision of research projects and the feed production program; and public relations activities, such as field days, instructing veterans groups, and giving information to farmers and other visitors.

The four principal lines of research are: Dairy and forage crops, poultry, horticulture, and agronomy. A study of pasture production and maintenance, with a view to determining the best rotation and management in providing constant year round pasturage for the herd, is carried out in the forage crops program. Considerable work has been done with summer grazing of millets—Common, Star Hybrids, and Coastal Bermuda grass. The new bunker silos have been constructed and studies are underway to compare keeping and feeding qualities of silage in bunkers with silage in upright silos.

Another phase of dairy research relates to breeding for higher milk production. Herd production has been increased both as to quantity of milk and amount of butterfat. Proof of better production is shown by the record of "Will Sena BDI Maid" who set a national record for a junior 4-year old for 305 days, twice daily milking for a registered Jersey, with 15,705 lbs. of milk and 821 lbs. of butterfat. Work is also being conducted to find a better and more economical way of raising calves.

During the past two years the following phases of poultry research work have been under way: Breeding for superior Rhode Island Reds, free choice system of feeding, comparison of various blood lines of laying-type hens, testing growth factors for broilers, testing broiler strains, means of cooling laying houses, and cage laying house management.

Strawberry research, a horticultural project, has been continued during the biennium, and new selections have been made and tested. Selections previously made and introduced have continued to demonstrate their worth. They serve as the principal commercial varieties grown in the southeastern part of the state. The use of these varieties has been spreading through the country. Work is being conducted to establish selections that are virus free. Muscadine grape work consists of measuring yields of present varieties and testing new varieties. Studies are under way to determine better pruning and management methods.

Agronomy research consists primarily of testing corn hybrids produced in the Experiment Station's breeding work, soybeans

originating from the soybean breeding program, and new productions from other states.

During the past fiscal year a platform hay drier has been used for the purpose of trying to determine a satisfactory way of curing hay in the humid eastern North Carolina climate. Soybeans, coastal bermuda, lespedeza, and fescue have been cured on this drier.

In order for this station to continue to serve the needs of the farmers of eastern North Carolina, we need to gear the research program to the fast changing developments in agriculture. On the station we need to keep up to date with modern, efficient machinery. As to the improvement of facilities there is a need for funds to modify some of the old buildings to better serve the requirements of the present research program.



## SEED TESTING DIVISION

W. H. DARST

*Director*

The Seed Testing Division was established to enforce the North Carolina Seed Law, the purpose of which is to assure farmers that the seed they buy are correctly labeled and meet minimum standards for germination, purity and weed-seed content.

To achieve this purpose, the Division carries on several types of activity. It inspects, analyzes and tests field and garden seed on sale within the state. As time and facilities permit, it analyzes seed without charge for growers, dealers and other residents of North Carolina. Its cooperative endeavors include analyzing all seed to be certified by the North Carolina Crop Improvement Association, sampling and testing seed for the Landscape Department of the State Highway Commission, analyzing and testing seed for the Agricultural Stabilization and Conservation Committee of the United States Department of Agriculture for compliance with the minimum specifications of that agency for seed furnished farmers, and aiding in the enforcement of the Federal Seed Act.

The official seed testing laboratory operates under the "Official Rules for Sampling and Testing Seed" adopted by the Association of Official Seed Analysts, and other requirements of the North Carolina Seed Law. The Division is an active member of this Association, as well as the Association of American Seed Control Officials and the Seed Control Officials of the Southern States. Participation in the work of these associations has been of great help in maintaining a high standard of efficiency in carrying out the functions of this Division.

The personnel of the Division includes 15 full time employees, consisting of one director, five seed specialists (inspectors), one supervising analyst, five purity analysts, two germination specialists, and one stenographer-clerk.

Since the work load in the laboratory varies greatly with the season of the year, additional temporary help is employed to supplement the work of the permanent employees during the months of August through March. These temporary employees consist of two full-time analysts, several agricultural college students, and some additional clerical help.

A survey made by the Association of American Seed Control Officials in 1956-57 showed that the North Carolina seed laboratory ranks first in the nation in the number of service samples tested annually for farmers and seedsmen, and fourth in the total number of seed samples tested by a state laboratory. The survey also showed that, while North Carolina ranks second in the number of seed analysts employed in its central laboratory, the unit cost per sample tested in this state is the eighth lowest reported.

The number of seed samples tested by this Division during the 1956-1958 biennium totaled 43,631. In addition, 54,426 seed lots were inspected and analysed at dealers' places of business. Stop-sale orders were issued on 368 seed lots consisting of 16,596 bags of seed which were in violation of the seed law. Of this number, 9,962 bags were re-labeled in compliance with the law, and sale was prohibited on 6,634 bags.

Comparing this biennium with the 1954-1956 biennium, there is good evidence that more seed dealers, within and without the state, are selling seed of higher quality and better labeled in compliance with the law.

Several hearings on seed law violations were held before the Commissioner of Agriculture. At the end of this biennial period (June 30, 1958) one court case concerning the mislabeling of tobacco seed was still pending. Approximately 65 violations of the Federal Seed Act and the State Seed Law were reported to the federal district office for consideration.

The North Carolina Seed Law was amended in 1957 to require that all flue-cured tobacco seed sold in the state must be recorded with the Commissioner of Agriculture before November 1 preceding each growing season.

The purpose of this amendment is to ensure the correct labeling of tobacco seed as to variety, a question which cannot be determined by a visual examination of the seeds. Two provisions of the amendment are designed to aid in achieving its purpose. One requires that a sample of the seed must be submitted at the time it is recorded. This is kept on file, so that it can be grown in a variety test as a check against seed offered for sale under the recorded variety name.

The second provision of the amendment established a "Tobacco Seed Committee", which must declare flue-cured varieties to be correctly identified before they may be accepted for recording by the Commissioner.



In June, 1957, the General Assembly ratified "An Act to Require the Inspection by the Department of Agriculture of Seed Planted in the State Highway and Public Works Commission." This law provides that any seed planted along a highway or road right-of-way in the state must first be tested in the laboratory of this Division and approved for compliance with the Seed Law and regulations.

On May 12, 1958, the State Board of Agriculture amended the seed regulations by lowering the germination standard for garden beans from 75 percent to 70 percent. This was done to make the state standards conform to federal standards which had been recently changed. Uniformity between state and federal standards is desirable insofar as this is practicable.

Also on May 12, 1958, the Board of Agriculture added witchweed (*Striga asiatica*) to the list of noxious weeds which are prohibited in crop seed. Witchweed is a comparatively new parasitic plant in North Carolina, and is a serious threat to corn, sorghums and similar crops. While the seed are very small and difficult to detect, any crop seed containing evidence of the presence of witchweed is prohibited sale.

# SOIL TESTING DIVISION

DR. EUGENE J. KAMPRATH

*Director*

Efficiency in production has become a must factor for farmers in North Carolina who are dependent upon the production of food, fiber, and tobacco for their livelihood. To obtain maximum economic returns from crop production it is necessary for farmers to know the fertility and lime status of their soils. It is the function of the Soil Testing Division to provide this information to the farmers of the state.

During the period from July 1, 1956, to June 30, 1958, over 91,000 soil samples were analyzed for North Carolina farmers. Of these farmer samples, over 450,000 separate determinations were made during this period. In addition, 2,000 other soil samples from florists, nurserymen, and special problem areas were analyzed.

The number of samples has decreased in comparison to those analyzed during the previous biennium. This is a reflection of the sharp decrease in the cultivated crop acreage due to the Soil Bank program.

Considerable interest has developed in soil testing in the past year. During the winter of 1957-1958 a soil sampling drive was initiated by the agricultural workers of Hoke County. The objective of this drive was to have every farmer take at least one soil sample and follow the soil test recommendation as a means of improving the economy of the county which is very dependent upon agriculture.

Several other counties have made plans for an intensified soil sampling program for this coming year. In addition, fertilizer companies are placing renewed emphasis on the importance of soil tests as the basis for selecting the proper ratio and amount of fertilizer to apply.

This Division has cooperated with various departments of North Carolina State College by making detailed chemical analyses of soil samples from research and demonstration plots. This work is important as it helps to evaluate present fertilizer recommendations and also provides data for any new recommendations which might be made. This work is conducted dur-



ing the time of year when the number of farmers' samples received is at a minimum. During the two year period over 10,000 soil samples were analyzed for the research personnel at North Carolina State College.

The rapid technological progress in farming, and the increasing emphasis on efficiency in production, make it necessary to refine and develop new chemical methods for estimating the fertility and lime status of soils. The past several years' work has been under way to evaluate the nitrogen-supplying power of North Carolina soils by more adequate methods. Another research project has been started to compare various methods for estimating the available potassium content of certain mountain and piedmont soils. The development of more refined tests for nitrogen and potassium will result in a more efficient use of fertilizer by the farmer.

The personnel of the Division participated in numerous radio and television programs, and meetings with farm groups, pointing out the value of soil tests and the importance of proper soil sampling.

The technical and clerical staff are to be commended for the fine job they did in carrying out the work of the Division.

# THE STATE FAIR

DR. J. S. DORTON, *Manager*

During the past two years, the State Fair has made progress in expanding its physical facilities.

The old WPA records building has been remodeled, and is now an attractive, useful building. Before remodeling, this old structure was neither attractive nor useful except for shop space and storage. By converting it into a lounge building, it will serve many long needed purposes and should be a favorite meeting place for fairgoers. It will quarter first aid rooms, the Red Cross, the Lost Kiddies Colony and two badly needed rest rooms.

The erection of seven new permanent-type lunch stands is another outstanding improvement made in 1958.

During 1957, higher operation costs, the recession and Asiatic Flu (the Health Department reported 100,000 cases in the state on Wednesday of Fair Week) combined to curtail the financial success of the Fair. For the first time since the Fair became a division of the Department of Agriculture, revenues were insufficient to meet production costs, and a net loss of \$4,973.81 was shown by the audit.

As this report is written, the 1958 Fair will begin in about a week. With good weather, higher attendance and revenue figures, we have high hopes for a successful year. With the interest already shown by the state's institutions, business enterprises, and the citizens who are competing for the \$50,000 in premium money, we hope to have the most representative group of exhibits ever shown.

Ninety-three counties were represented by exhibits in 1957. This was the largest number ever represented.

During the past year, the non-Fair use of buildings and grounds increased. Many school, church, club and professional groups were guests at the Youth Center. The State Fair Arena continues to attract tourists, engineers and architects from over the entire world in ever increasing numbers. Commercial and civic sponsors of entertainments and sports events are making greater use of it. With the addition of ice equipment in pros-



pect, it is expected that a number of additional bookings may be obtained.

<i>Year</i>	<i>Revenue</i>	<i>Improvement, Maintenance of Grounds</i>	<i>Premiums Paid</i>
1957.....	\$268,159.77	\$33,442.33	\$49,649.62
1956.....	282,032.88	35,141.53	49,290.73
1955.....	320,932.18	28,182.03	46,904.75
1954.....	273,365.51	23,108.17	43,152.80
1953.....	302,566.79	34,293.53	41,979.35
1952.....	276,214.58	55,187.48	37,842.71
1951.....	258,340.60	44,311.22	31,075.50
1950.....	212,455.58	19,383.29	30,650.00
1949.....	233,523.22	25,635.68	28,550.00
1948.....	196,924.72	26,174.24	25,332.75
1947.....	166,312.27	34,639.31	20,283.00
1946.....	220,544.03	36,855.35	14,499.50
1942-45.....	(No Fair)	26,170.43	
1941.....	101,856.00	11,969.92	18,775.25
1940.....	80,742.52	7,379.71	17,254.25
1939.....	72,128.72	8,549.40	16,677.75
1938.....	78,599.32	7,358.78	15,383.00
1937.....	68,867.01	10,793.01	12,664.92

## DIVISION OF STATISTICS

HENRY L. RASOR

*Statistician in Charge*

In any economy the law of "supply and demand" has always been a dominant factor where marketing of products is concerned. More than a century ago our nation's farmers began to realize that they were placed at a disadvantage in bargaining because they knew so little about crop and livestock supplies. Prodded by agricultural interests throughout the nation, Congress in 1839 authorized an appropriation of \$1,000 to the United States Patent Office to be used for distributing seed and for collecting agricultural statistics.

From this very modest beginning was developed the Federal Crop Reporting Service which maintains 41 state statistical offices throughout the nation. In practically all of these offices the federal government has entered into cooperative arrangements with certain state agencies whereby detailed agricultural statistics are made available and disseminated to the public.

One of these offices is in North Carolina, and it is popularly known as "The North Carolina Crop Reporting Service." This office, which embraces our Division of Crop Statistics, was established in 1919 as a cooperative effort of the North Carolina and the U. S. Departments of Agriculture. Its chief responsibilities are the preparation and dissemination of agricultural statistics for North Carolina and for the various counties and townships within the boundaries of the state.

Statistics provide the factual information without which modern society cannot properly function. This is equally as true for agriculture as for industry or any other phase of our economy. It is only through the availability of such statistics that it is possible to measure changes or progress that are taking place. It is only through availability of agricultural production statistics that farmers' production and marketing plans can be carried out with optimum efficiency.

It is worthy of note that North Carolina leads all other states in farm population and is second only to Texas in number of farms. In value of production the state usually ranks in either third or fourth place among the states of the nation. More than



three-fifths of the total land area is classified as farm land. It is not surprising, therefore, that North Carolina agricultural statistics are in great demand.

The Crop Statistics Division is experiencing an almost unprecedented and constantly increasing demand for basic agricultural statistics at the state and local levels. This demand comes not only from our farmers and agricultural workers, but also from non-agricultural enterprises which recognize their dependence upon our agricultural economy. The increased emphasis on establishment of new industrial plants in the state has greatly accelerated the demand for agricultural statistics at the local level. The public is becoming more and more interested in knowing which commodities are being produced in our state and in what quantities. They want to know, too, in what areas of the state these commodities may be found and when they will be ready for market.

In order to meet this ever increasing demand for crop and livestock information, the Division develops more than 350 separate reports each year, which cover approximately 6,500 items of interest to farmers.

This wide coverage is made possible through the voluntary aid of approximately 40,000 farmers and businessmen throughout the state who give of their time to provide information for the common good of all. These voluntary reporters complete and return questionnaires which are mailed to them periodically throughout the year, with no monetary reward but with the knowledge that they are performing a public service in helping to provide current information necessary for accurate agricultural statistics.

In addition to this regular corps of voluntary reporters, the Division has access to individual farm records from more than 330,000 farm tracts. Data from these records are collected annually under the direction of the County Commissioners in connection with an annual state farm census.

Although much of the basic information is secured through the return of mailed inquiries and through farm census reports, extensive field travel must be performed in making personal observations and interpretations and in contacting farmers, merchants, county agricultural workers, and others who are familiar with crops and livestock within their particular localities. During the past two years, an average of about 110,000 miles were traveled per year by personnel assigned to the Division. The

bulk of this travel has been performed at federal government expense.

As the basic information is assimilated from various sources, it is processed by Division personnel, and summaries are carefully analyzed by highly trained technicians in the preparation of official crop and livestock estimates. Releases containing these estimates are prepared immediately for distribution through newspapers, radio stations, and other interested concerns.

As a ready reference to those interested in North Carolina agriculture, the Division publishes a semi-monthly "Farm Report." This publication is recognized as the official crop bulletin of the North Carolina Department of Agriculture and contains current state and national estimates as released by the national Crop Reporting Board.

The increasingly heavy demand for North Carolina agricultural statistics is demonstrated by the fact that during the fiscal year 1957-58 there were more than 835,000 separate copies of bulletins, reports, etc. distributed to people specifically requesting receipt of such information. This was an increase of about 70,000 over the number distributed during the preceding year. This is in addition to the large number of requests received by mail, telephone, and personal visitation. During the fiscal year 1957-58 approximately 2,400 such requests were received and serviced. Many of these involved the bringing together of a multitude of facts from various sources and presenting the combined data in comprehensive form for ready use by governmental agencies or private concerns interested in locating plants within the boundaries of the state.

For the sake of continuity in our series of agricultural estimates, the work of the Division must follow some general pattern from one year to the next. At the same time, we attempt to provide new information as warranted by demands. At present the Division is undertaking an extensive survey of commercial broiler processors preparatory to developing broiler production statistics at the county level. Commercial broiler production is one of North Carolina's fastest growing agricultural enterprises, and out of this rapid growth there has developed a very large demand for more detail in production statistics.

Despite the large volume of North Carolina agricultural statistics made available to the public through the facilities of the Crop Statistics Division, we still receive many requests which



cannot now be filled. Estimates of cash farm income by counties are badly needed as are comprehensive estimates of crop production costs. It is to be hoped that within the not too distant future it might be possible to meet these demands for such valuable information. In the meantime, we shall continue, as we have in the past, to develop as many different essential statistical reports as availability of funds and personnel will permit.

## VETERINARY DIVISION

DR. H. J. ROLLINS

*State Veterinarian*

The Veterinary Division administers the laws and regulations designed to control and eradicate infectious and transmissible diseases of livestock and poultry. The Division performs various and complex services in specialized scientific fields. The State Veterinarian, within the framework of established policy, is responsible for administration of the North Carolina disease control and eradication programs.

The State Veterinarian and his assistants, in cooperation with the Federal Veterinarians, recommend and carry out uniform methods of inspection, testing, diagnosis and quarantine for the control of infectious diseases of livestock and poultry on a state-wide and national scale. Programs for the control and eradication of Brucellosis, Tuberculosis, Vesicular Exanthema, Scrapie and foreign diseases introduced by accident or sabotage are conducted under cooperative agreements between the Veterinary Division of the North Carolina Department of Agriculture and the Animal Disease Eradication Division, United States Department of Agriculture.

The livestock and poultry population in North Carolina continues to increase each year. The increased numbers, concentration and mass movement of livestock and poultry, and rapid transportation by truck, train and plane, increase the hazards of both domestic and foreign disease outbreaks.

**Brucellosis:** The blood testing of herds and slaughter of reactors is a major factor in the eradication of Brucellosis and the maintenance of Brucellosis free herds. The states adjoining North Carolina have made excellent progress under the national accelerated Brucellosis program. Cattle purchased for herd additions should be obtained from known Brucellosis free herds. A large number of reactors are found as a result of the purchase and importation of animals with questionable health status. At present a majority of the Brucellosis reactors found are in the commercial beef herds.

The Mobile Ring Test Laboratory was in full operation during the biennium. Milk samples from Grade A and commercial dairy herds are collected and tested at six-month intervals. The Brucellosis ring test is an aid in the early detection of the disease in



dairy herds. However, the accuracy of the milk ring test has not been perfected, and, therefore, it is not an acceptable substitute for the blood test. Brucellosis reactors have been found in negative ring test herds and only about 20 percent of the ring test suspect herds are found to have reactors by the official blood test.

Calfhood vaccination with Strain 19 *Brucella* vaccine is available to any herd owner upon request and adoption of the calfhood vaccination program. Calfhood vaccination establishes a varying degree of resistance in the individual animal. Annual blood testing of the herd, including all calfhood vaccinates prior to breeding, is recommended. Calfhood vaccinates showing a reacting blood test titer 18 or more months following date of vaccination are classed as reactors. The percentage of calfhood vaccinates classed as reactors when located in Brucellosis free herds is very low.

## SUMMARY OF BRUCELLOSIS BLOOD TESTS

	1956-57	1957-58
Herds tested .....	33,939	24,219
Cattle tested .....	277,092	252,429
Number of Reactors .....	639	634
Number of Infected Herds.....	325	262
Number of Calfhood Vaccinates.....	3,000	4,523

## SUMMARY OF BRUCELLOSIS RING TESTS

	1956-57	1957-58
Number of Dairy Herds.....	21,595	23,034
Number of Dairy Cattle.....	315,471	348,910
Ring Test Negative Herds.....	21,420	22,764
Ring Test Suspect Herds.....	175	270
Percentage of Infection.....	0.14	0.15

**Tuberculosis:** The tuberculin test is an accurate method of identification of animals infected with Tuberculosis. Early detection and slaughter of the infected animal have largely prevented further spread of the disease to other cattle. A larger majority of the tubercular reactors during the present biennium was identified as imported cattle or other cattle exposed to infected imports.

Swine infected with Tuberculosis were located in four herds during the biennium. Cattle or swine infected with Tuberculosis are immediately slaughtered under federal-state supervision.

## SUMMARY OF TUBERCULOSIS TESTS

	1956-57	1957-58
Herds Tested .....	13,652	12,058
Cattle tested .....	174,427	178,915
Number of Reactors.....	9	20
Number of Infected Herds.....	8	5

Mastitis continues to exact serious economic losses in dairy herds. Sanitation, management, proper housing to prevent injuries, and differential diagnosis along with suitable medicinal agents, are essential aids in the control of Mastitis. A total of 3,067 milk samples were examined in the diagnostic laboratory. A total of 2,789 milk samples were found to contain either coliform or coccoid bacteria, with some samples containing both types of organisms.

Leptospirosis has been diagnosed in livestock and dogs during the biennium. The disease may vary from a form so acute that it causes death in one to three days to one so mild as to go unnoticed by the owner. The laboratory report covering 2,212 blood serum samples showed 223 positive or suspicious animals and 1,989 negative. Adequate control has been extremely difficult due to the nature of the disease, its ability to infect most species of large animals, its healthy-carrier problem, its reservoir in wildlife and its ability to live outside of the animal's body. The disease is important both from an animal and human health standpoint.

Vesicular Exanthema has not been known to exist in North Carolina since January 1954. Enforcement of the Garbage Feeding Law and the rules and regulations thereunder, has prevented the recurrence of this disease. Garbage fed swine and garbage feeding premises are inspected once each month and more often when necessary by state or federal inspectors. The frequent inspections are expensive but must be continued to prevent future outbreaks of Vesicular Exanthema.

The importance of Vesicular Stomatitis in cattle and swine is its similarity to Vesicular Exanthema and Food and Mouth Disease. A differential diagnosis of this disease is by animal inoculation and laboratory test. The disease generally occurs in the summer and fall and is mostly confined to the eastern part of the state. Infected and exposed animals are placed under quarantine and the premises are cleaned and disinfected following death or recovery of the infected animals. The chief economic importance consists of restricted movement of infected and exposed animals, loss of weight of infected animals and the expensive inspection and diagnostic procedure. Death losses are very low.

Vibriosis is a breeding problem of importance. A total of 420 serology samples were submitted for laboratory examination with findings of 27 reactors, 68 suspects and 325 negative.

Anaplasmosis has been diagnosed in a number of herds. A



total of 180 blood serum samples were submitted to the laboratory for test with findings of 153 positive and 27 negative.

Parasitic diseases, both internal and external, continue to exact serious economic losses in the livestock and poultry population of the state. A program of sanitation and management in combination with available vermicides and insecticides will effectively reduce serious economic loss. Parasitic infestation lowers the resistance of the affected individuals and is responsible directly or indirectly for outbreaks of infectious, nutritional and non-infectious diseases of livestock and poultry.

Equine Encephalomyelitis (sleeping sickness) has occurred in horses and mules, but fewer cases were reported than in the previous biennium. This disease is primarily transmitted by mosquitoes and other blood sucking insects. Annual vaccination prior to exposure is an effective method of prevention, control and eradication. Immediate vaccination is recommended in those areas where the disease is known to exist. The disease is transmissible to man, other mammals and birds. The other infectious diseases affecting horses and mules have been minor in character.

Hog Cholera alone, or in combination with other diseases, is responsible for the greatest number of death losses in the swine population of the state. A large number of susceptible swine, either unvaccinated or improperly vaccinated, continue as a constant threat to widespread outbreaks of Hog Cholera. The vaccination of swine by unqualified personnel, the use of improperly stored and reconstituted modified virus vaccine in combination with too small a quantity of anti-hog cholera serum, or without serum, is not recommended. Modified virus vaccine properly refrigerated and used in combination with an adequate dose of anti-hog cholera serum will produce a satisfactory immunity of healthy swine. A large dose of anti-hog cholera serum not only gives immediate protection against hog cholera but is an aid in the prevention of secondary diseases frequently observed following vaccination with modified virus. Anti-hog cholera serum alone will give effective protection for approximately 15 days, and this is often chosen, especially in herds infected with a disease or diseases other than Hog Cholera. The local veterinarian is best qualified to determine the health status of the herd and the selection of the proper product to be used in the vaccination of swine.

Three diseases relatively new to this area have been diagnosed and seem to be slowly on the increase. They are Transmissible Gastro-enteritis, Atrophic Rhinitis and Virus Pneumonia. Trans-

missible Gastro-enteritis is a serious killer of baby pigs and, in a few instances, has been responsible for the complete loss of one pig crop on infected premises. Atrophic Rhinitis and Virus Pneumonia do not produce such great death losses, their effects being mostly noticed as an economic loss in extending the growing and feeding period requirements.

Mass movement and concentration of livestock from various sources of origin at markets and other points present a huge disease problem. Compulsory vaccination of breeding and feeding swine, and testing of breeding and feeding cattle moving through livestock markets, are essential aids in preventing the spread of Hog Cholera and Brucellosis.

The inspection of 57 public livestock auction markets and movement of livestock, and supervision of cleaning and disinfecting contaminated premises, are additional duties of the Veterinary Division.

A qualified veterinarian can usually diagnose and properly treat diseased livestock on the farm. Complicated disease problems encountered by veterinarians on the farms should be referred to the laboratory for differential diagnosis. Laboratory diagnosis is an additional aid to veterinarians in the selection of proper treatment of diseased animals. Early diagnosis and immediate treatment is an essential part of the control and eradication of infectious and transmissible diseases.

The greatest problem in operating the laboratory is difficulty in getting proper specimens from disease outbreaks in the field. Selection of the proper animal to be sent to the laboratory for examination should be made by veterinarians treating the herd. Selection of an animal representative of the condition in the herd is very important if the owner is to receive the greatest benefit. Submission of "runts", "culls" or decomposed animals or birds for examination, when they are not representative of the disease present, results in time-consuming and time-wasting effort from which no one receives any benefits.

The large-animal diagnostic laboratory handled 1,083 pathological specimens or cases, which included 512 autopsies, in the fiscal year 1956-57; and 1,276 cases, 544 of which were autopsies, during the fiscal year 1957-58. These laboratory services were in addition to serological and bacteriological tests outlined in another section of this report. Swine comprised 65 to 75 percent of the laboratory autopsies. The most commonly diagnosed swine diseases are Hog Cholera, Salmonellosis and Pasteurellosis.



The large-animal laboratory also conducts histopathological examinations on selected tissues for the five poultry laboratories. During the biennium 1,215 tissue slides were examined for specific pathology of disease.

The production of hatchery flocks, sale of baby chicks, hatching eggs, commercial eggs, and broilers constitute a major farm industry in North Carolina, and they have continued to increase in volume during the biennium. Many areas in the eastern part of the state have greatly increased their turkey and poultry operations. Present information indicates continued increase in turkey and poultry production in the eastern areas. Poultry disease problems increase in a comparative ratio with increased production and concentration of poultry and turkey flocks. All birds in hatchery flocks are pullorum-typhoid tested and culled by personnel of the Division or by licensed testing agents under the supervision of the Veterinary Division. The National Turkey and Poultry Improvement Plans are administered by the Veterinary Division of the North Carolina Department of Agriculture. The Division inspects hatcheries, licenses and supervises the operations of baby chick and hatching egg dealers. The majority of flocks producing hatching eggs are classed as pullorum-typhoid clean. Flocks in which a minimum number of pullorum-typhoid reactors are found are retested and, if negative, classed as pullorum-typhoid passed.

## SUMMARY

	1956-57	1957-58
Number Chicken Flocks Tested.....	3,117	2,712
Number Chickens Tested.....	2,781,109	2,984,750
Number Reactors .....	223	280
Number Chickens tube tested.....	51,852	87,238
Number of hatcheries .....	141	147
Number of chick dealers.....	398	374
Number of hatching egg dealers.....	24	23
Number Turkey Flocks tested.....	68	63
Number Turkeys tube tested.....	61,522	61,555

The poultry diagnostic laboratories are located at Monroe, North Wilkesboro, Raleigh, Shelby and Waynesville. The poultry diagnostic laboratory in Raleigh is more adequately equipped and staffed than the other four laboratories. The Raleigh Laboratory, in addition to routine diagnostic services, received pathological specimens from the four branch laboratories when more complicated laboratory tests were required.

The poultry and virus diagnostic laboratory building, now under construction on Western Boulevard in Raleigh, should be

completed and equipped during the first year of the next biennium.

The Wilkes Area Poultry Association built and donated a modern poultry laboratory building during this biennium. The laboratory equipment was furnished by the Veterinary Division of the North Carolina Department of Agriculture.

The poultry diagnostic laboratories autopsied 7,268 birds during the fiscal year 1956-57 and 11,928 birds during the fiscal year 1957-58. These laboratories conducted 113,374 serological tests during the fiscal year 1956-57 and 148,793 during the fiscal year 1957-58.

The voluntary inspection of poultry for wholesomeness and voluntary inspection of meat, meat products and meat by-products are under the supervision of the Veterinary Division. The veterinarians and lay inspectors required for inspection service are employed as temporary personnel. The inspection and administrative costs are collected from the operators of the poultry and meat establishments.



## WAREHOUSE DIVISION

A. B. FAIRLEY

*State Warehouse Superintendent*

The state warehouse system, which now embraces a number of commodities, was created by the Legislature of 1919 as a result of a deplorable situation which cotton farmers faced at the beginning of World War I.

Cotton was then bringing about 11 cents a pound, was difficult to sell and could not be used as collateral for borrowing. It was not practical to hold it for a rising market because there were not many cotton warehouses, and some of those did not enjoy good reputations.

The few warehouses were located in large cities. Most eastern North Carolina producers sent their cotton to Norfolk on consignment. If not sold immediately, it was carried back to the farm and usually left in the open. This resulted in heavy losses from water and weather damage and exposure to fire and theft.

The development of an adequate warehouse system for this staple crop was needed to enable its growers to withstand and remedy periods of depressed prices. It was, therefore, necessary to provide a modern system whereby cotton may be more profitably and more scientifically marketed to make this important crop serve as collateral in the commercial world. It was also necessary to provide for strict state supervision of warehouse operations and to establish a guaranty fund for "the financial backing which is essential to make the warehouse receipt universally accepted as collateral." This fund came from a ginner's tax of 25 cents a bale which was collected on cotton ginned in the state for a period of three years.

The warehouse fund can, under the law, also be used to secure first mortgages on warehouse construction. The purpose of this measure is to aid and encourage the establishment of warehouses operating under the system. The law requires ten percent of the fund to be invested in bonds, permitting the remaining 90 percent to be used for warehouse construction.

The State Warehouse System operates on the interest derived from these loans and bonds, while the principal fund acts as a guarantee back of the receipts issued by state licensed warehouses.

Although it was at first limited to cotton, the benefits derived from the State Warehouse System were so great that the Warehouse Act was amended in 1941 to include other agricultural commodities, with the exception of tobacco. This has proved of great benefit to the producers of grain and other farm commodities. It has been the cause of a steady increase in the construction of grain and other storage facilities. Several large grain elevators are in process of construction at this time, as well as several warehouses for storing sweet potatoes, and other commodities.

The law provides safeguards on warehouse loans. It spells out the kinds of mortgages made, the amount of warehouse value covered by such mortgage and time limitation for mortgage to run.

Before loans are made, the Warehouse Superintendent investigates to determine if it is a safe risk and if the warehouse is needed. Final approval for such loans must be made by the Board of Agriculture, the Governor and the Attorney General.

A cooperative agreement with the United States Government provides for warehouses to be licensed under federal as well as state supervision. Warehouses are checked several times each year by federal inspectors without cost to the state. Lespedeza and poultry warehouses are licensed under state supervision only and these are checked three or four times each year under state supervision.

Commodities stored in licensed warehouses are insured against loss by fire or lightning. If grain is stored, it is also insured against loss by windstorm. The law places responsibility for insurance on the State Warehouse Superintendent and he has other responsibilities relative to the collecting and payment of claims.

Warehouses licensed under the State Warehouse System provide safe storage for farm commodities, and the receipts they issue are accepted by all banks as the best of collateral. Producers are, therefore, able to store their commodities and borrow money on them, instead of being forced to sell at a time when they feel that the price for their product is not a fair price. Storing agricultural products in state licensed warehouses provides safety and promotes orderly marketing.

During the past biennium the State Warehouse System has licensed for cotton storage the largest capacity in its history. There were licensed 99 warehouses for cotton, with a storage



capacity of 875,000 bales. This represented an increase of 200,000 bales over the previous biennium.

There were licensed also 19 grain and lespedeza warehouses, with a capacity of over 3,000,000 bushels. This was an increase of three warehouses and elevators for grain, and an increase of 1,000,000 bushels in capacity. There was one cold-storage warehouse licensed.

Loans were made for warehouses and elevator construction at Shelby, Statesville and Greenville, the first of these being a warehouse for cotton, the other two for grain. The storage capacity of the grain elevators is 700,000 bushels.

Several large cotton fires occurred, the total loss running over \$500,000. This loss was adequately covered by insurance and all depositors were paid in full.

Payments of interest and principal on loans have, in most cases, been met promptly, and the financial status of the State Warehouse System is as follows:

JUNE 30, 1956			
<i>Cash on hand Principal Fund</i>	<i>Cash on hand Supervision Fund</i>	<i>First Mort- gage loans</i>	<i>Invested in Gov- ernment Bonds</i>
\$53,183.83	\$22,098.04	\$308,416.00	\$380,000.00
JUNE 30, 1958			
\$ 228.95	\$16,602.70	\$612,868.00	\$ 97,000.00

# DIVISION OF WEIGHTS AND MEASURES

C. D. BAUCOM

*Superintendent*

The Uniform Weights and Measures Law was enacted for two purposes :

1. To protect the purchaser or seller of any commodity and
2. To provide one standard of weight or measure which shall be used throughout the state.

Thus, the purposes and objectives are clearly defined. In the attainment of the intent of the law, however, provision is made for the adoption of rules and regulations devised and approved by the Board of Agriculture which must be consistent with mandates of the law.

During the past biennium, the inspectors of this Division visited 22,831 places of business where weighing and measuring devices were being used. They inspected 47,316 scales (condemned 3,799) ; inspected 60,351 weights (condemned 702) ; re-weighed 212,151 packages (condemned 42,921, which unfortunately is on the increase percentage-wise).

In the auction tobacco warehouses they re-weighed 9,985 baskets of tobacco which weighed a total of 1,675,997 pounds. Of the number of baskets re-weighed there were 1,402 pounds gained and 6,737 pounds lost, or a net loss, while on the floor and in the process of sale, of 5,335 pounds or approximately three-tenths of one percent.

In the enforcement of the Liquid Fertilizer Law, our inspectors visited 700 places where liquid fertilizer was being handled, stored or distributed. They approved 1,339 installations as being safe and condemned 252 as being unsafe. During 1957, there were 504 liquid fertilizer dealers and contractors registered in this state, an increase of 143 over 1956.

This Division is also responsible for the enforcement of the law dealing with the reduction of fire hazard in tobacco curing barns. In the conduct of this activity, 5,288 new installations were inspected, of which 4,489 were approved and 744 condemned.

Under the Weighmaster Act this Division annually registers approximately 1,400 public weighmasters, who operate mostly in



tobacco warehouses and livestock markets. Under the Scale Mechanic Act approximately 90 scale mechanics are bonded and registered annually, a legal requirement for the protection of those who may need scale repair service.

North Carolina is one of the few states that has a prescribed minimum-load-bearing concrete block strength. During the past biennium, 732 concrete blocks were picked up and tested, and of this number 656 were approved and 70 condemned. These sample blocks were taken from every block manufacturer in the state. It is interesting to note from our records that the average load bearing strength now is approximately 30 percent greater than the minimum requirement of 700 pounds per square inch of gross load-bearing area.

It is also of general interest that basically the Weights and Measures Division was created in the interest of the consumer, and that all the services enumerated in this report were rendered by a personnel of 16 employees, at a cost to the consumers of North Carolina of less than two and one-half cents per person. Our appropriation for 1957-58 was \$98,566.00.

#### GASOLINE AND OIL INSPECTION

Administration of the Gasoline and Oil Inspection Law is a separate function in the Weights and Measures Division. Its purpose, as stated in the law, is "to protect the public in the quality of the petroleum products it buys, to provide one standard of measure, that frauds, substitutions, adulterations, and other reprehensible practices may be prevented". Thus, our objectives are well defined. The attainment of our objectives may be evaluated by the following facts:

During the past biennium 83,038 places of business were visited; 205,995 pumps and meters inspected (7485 condemned); 28,674 tank trucks, meters and oil measures calibrated (234 condemned); 78,296 gasoline samples analyzed (292 condemned); 18,899 kerosene samples analyzed (241 condemned); and 11,278 liquefied gas installations inspected for safety (2496 condemned).

There was an annual registration of approximately 350 pump mechanics, approximately 275 liquefied petroleum gas dealers, and approximately 750 registered gasoline brands. Gasoline samples representing 1,450,654,894 gallons were taken during the year 1957-58.

As of August 1, 1958 there were 18,203 gasoline retail outlets in North Carolina, equipped with 41,994 gasoline pumps, 16,334

kerosene pumps, and 408 diesel fuel pumps, or a grand total of approximately 58,736 measuring devices used daily in dispensing petroleum products to the consumer.

A study of the above data reveals that the purpose of the law as well as the objectives expressed are being attained through the enforcement of the law, supported by reasonable rules, regulations, and procedures devised and approved by the Gasoline and Oil Inspection Board. The enforcement personnel consists of an office staff of five, with 20 pump inspectors, six calibrators, two liquefied petroleum gas inspectors, 20 chemists, and one laboratory helper.

The total appropriation for 1957-58 was \$311,043.00. Whereas an estimated four and one-half million citizens of this state benefit, directly or indirectly, by this inspection service, it is interesting to note that the cost per person is less than seven cents per annum.



